

FIFTY-SIXTH  
ANNUAL REPORT  
OF THE  
FISHERIES BRANCH

Department of Marine and Fisheries

FOR THE YEAR

1922

PRINTED BY ORDER OF PARLIAMENT



OTTAWA  
F. A. ACLAND  
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY  
1923







## CONTENTS

*To General His Excellency the Right Honourable Lord Byng of Vimy, G.C.B.,  
G.C.M.G., M.V.O., Governor General and Commander in Chief of the  
Dominion of Canada.*

MAY IT PLEASE YOUR EXCELLENCY:

I have the honour to submit herewith, for the information of Your Excellency and the Parliament of Canada, the fifty-sixth annual report of the Fisheries Branch of the Department of Marine and Fisheries.

I have the honour to be,

Your Excellency's most obedient servant,

E. LAPOINTE,

*Minister of Marine and Fisheries.*

DEPARTMENT OF MARINE AND FISHERIES,

OTTAWA, AUGUST, 1923.







DEPUTY MINISTER'S REPORT

CONTENTS

	PAGE
Deputy Minister's Report Covering:	
Review of the Fisheries of 1922...	7
Operation of the Fish Inspection Act...	10
Operation of the Meat and Canned Foods Act...	11
Fisheries Statistics...	11
Bait Reporting Service...	12
Scouting for Mackerel...	12
British Columbia Fisheries Commission...	12
Fishing Bounty...	13
Fish Culture...	14
Work of the Biological Stations...	21
Natural History Observations...	23
International Committee on Deep Sea Investigations...	23

APPENDICES

1. Reports of the Chief Inspector of Fisheries...	25
2. Fisheries Expenditure and Revenue...	61
3. Summary of Licenses issued...	71
4. Entries of United States Fishing Vessels...	74







DEPUTY MINISTER'S REPORT

To the Honourable ERNEST LAPOINTE,  
Minister of Marine and Fisheries.

SIR,—I have the honour to submit the Fifty-sixth Annual Report of the Fisheries Branch of the Department, which is for the fiscal year ended March 31, 1923.

The report deals with the following subjects:—

- Review of the Fisheries of 1922.
- Operation of the Fish Inspection Act.
- Operation of the Meat and Canned Foods Act.
- Fisheries Statistics.
- Bait Reporting Service.
- Scouting for Mackerel.
- British Columbia Fisheries Commission.
- Fishing Bounty.
- Fish Culture.
- Work of Biological Stations.
- Natural History Observations.
- International Committee on Deep Sea Investigations.

Appendices to the report include the following:—

- Reports of the Chief Inspectors of Fisheries.
- Fisheries Expenditure and Revenue.
- Summary of Licenses Issued.
- Entries of United States Fishing Vessels.

REVIEW OF THE FISHERIES OF 1922

The prosecution of the fisheries on the Atlantic and Pacific Coasts during 1922 was attended with greater success than in the preceding year. The aggregate catch was considerably higher. The results of operations on the inland lakes of Ontario and the West were, on the other hand, not quite so good as in the year before. The total marketed value of the fisheries of the whole of Canada for the year under review was nearly \$7,000,000 greater than that for 1921. The year 1921, however, was by much the poorest in value since 1914. Compared, therefore, with the value for 1920, that of 1922 is over \$7,000,000 less, while, if the results of the year under review are compared with those of the year preceding the great war, an increase of over \$8,000,000 will be found. The following table shows the contribution of the various provinces to the total value of the year being reviewed and of the year preceding it:—

	1922	1921
Nova Scotia.....	\$ 10,209,258	\$ 9,778,623
New Brunswick.....	4,685,660	3,690,726
Prince Edward Island.....	1,612,599	924,529
Quebec.....	2,089,414	1,815,284
Ontario.....	2,858,122	3,065,042
Manitoba.....	908,816	1,023,187
Saskatchewan.....	245,337	243,018
Alberta.....	331,239	408,868
British Columbia.....	18,849,658	13,593,670
Yukon Territory.....	10,107	28,988
	<u>\$ 41,800,210</u>	<u>\$ 34,931,925</u>



## ATLANTIC FISHERIES

*Cod, Haddock, Hake and Pollock.*—The aggregate catch of these fish on the whole Atlantic coast of Canada amounted to 3,045,000 cwts. This is 536,000 cwts. greater than the catch in 1921 and 338,000 cwts. greater than that in 1920. The increase is due to cod mainly, the catch of which was over 300,000 cwts. greater. The haddock catch exceeded that of the preceding year by 38,000 cwts., while the catch of hake was greater by 60,000 cwts. and of pollock by 20,000 cwts.

*Mackerel, Herring and Sardines.*—Mackerel were very plentiful in the spring along the Nova Scotia coast and at the Magdalen islands. The catch in all the provinces was 100,000 cwts. greater than that of the preceding year. The increase in Nova Scotia amounted to 75,000 cwts., while in Quebec, principally at the Magdalen islands, there was an increase of 28,000 cwts.

The herring catch was greater by 130,000 cwts. The increase was nearly all attributable to New Brunswick, as a result of improved conditions in the smoked herring business of the Bay of Fundy.

The sardine fishery has recovered slowly from the disastrous effects of the over supplies which clogged the markets a few years ago. There was an increase in the catch of 90,000 barrels.

*Other Sea Fish.*—The quantity of halibut landed was about the same as in the preceding year, which gave 7,600 cwts. more than in 1920. The catch of swordfish in 1921 was more than double that in 1920, while in 1922 it was nearly double that in 1921. The landings of albacore and flounders were slightly greater than those for the preceding year, while the catch of tomcod was about 4,000 cwts. less.

*Shell-fish.*—The quantity of lobsters taken during the year 1922 was 30,000 cwts. less than the catch in 1921. While the catch in the aggregate was less, three of the provinces gave an increased production, Prince Edward Island's catch being over 20,000 cwts. greater. To the western part of Nova Scotia is due the decreased total landing of lobsters. There, fishing begins early in spring, and, as the weather was much rougher in the spring months of 1922 than in those of 1921, operations were interrupted to a greater extent. The smaller catch was no doubt partly due also to the special fishery season granted in the fall of 1921. If the 30,000 cwts. taken at that time had been left uncaught, the catch of 1922 would have been greater possibly to that extent.

The catch of oysters was about the same as that in the preceding year. The beds in Richmond Bay, Prince Edward Island, which for some years past had not been producing, are now recovering and giving promise of a return to their old fertility.

There was a substantial increase in the catch of clams.

Scallops were taken in much greater quantities. The catch amounted to 10,700 barrels against 4,800 barrels in the preceding year. While the old scallop beds yielded their usual quota, new beds were discovered, especially on the Bay of Fundy side of Digby neck, which were vigorously and successfully operated on.

*River-Spawning Fish.*—The salmon fishery as a whole was slightly better than in the preceding year, the catch for 1922 being 36,300 cwts. against 33,800 cwts. for 1921. There was an increase of about 5,000 cwts. in the combined catches of Nova Scotia and Quebec, while the New Brunswick catch on the other



## SESSIONAL PAPER No. 29

hand was less by about 3,300 cwts. The total quantity taken in 1922 is above the average of the three preceding years. It falls considerably below the average of the five years preceding 1919 however.

The smelt fishery produced about the same quantity as in the year before.

Alewives or gaspereaux were more plentiful in the St. John Harbour district. The total catch as a consequence was almost three times greater than that for the preceding year.

## INLAND FISHERIES

The production of the chief kinds of commercial fish in inland waters, with the exception of pickerel from the lakes of the Prairie Provinces, was less than in the preceding year. The catch of whitefish was about 25,000 cwts. less, and of tullibee it was 16,000 cwts. less. The catch of pike, however, fell short by about 1,200 cwts. only and goldeyes by about 400 cwts. Pickerel on the other hand gave an increase of about 18,000 cwts.

The small catch of 1922 was due largely to the fact that the ice on the Western lakes was not sufficiently strong to permit operations thereon until late in the season.

The fisheries of Ontario in 1922 taken all over gave a somewhat greater production than in the preceding year, and there were increased catches of herring, trout and dore, but those of whitefish and blue pickerel were slightly less.

Fishing results in the St. John River district of New Brunswick were not quite so good as those for the year before.

## PACIFIC FISHERIES

*Salmon.*—The catch of 1922 was very much greater than that of the year before. The pack of all kinds of salmon in the year under review was in round figures 1,290,000 cases. This was double the pack of 1921. The pack of that year, however, was the smallest since 1908. The 1922 pack was also greater than the 1920 pack by 102,000 cases. On the other hand, the pack of 1922 was that much less than the one of 1919. It was also less than the packs of 1918 and 1917 by 326,000 and 267,000 cases respectively. The great increase in the 1922 pack over that in 1921 was derived chiefly from what are known as the cheaper varieties, pinks and chums. The pack of pinks in 1921 was 192,000 cases, whereas there were 581,000 cases packed in 1922. In 1921 there were 71,000 cases of chums packed, while in 1922, 258,000 cases were packed.

*Halibut.*—There were 293,000 cwts of halibut landed, against 325,000 cwts. for the year before. The catch of the year before, however, was very considerably greater than that of 1920. United States vessels, as usual, landed about two-thirds of the total catch, principally at Prince Rupert.

*Herring.*—These were abundant, and there was a greater quantity taken. The Oriental demand for herring in a dry salted state was good. During the winter season of 1922-23 a total of almost 160,000 boxes, each of which contained 400 pounds of fish, were salted and shipped across the Pacific. A considerable portion of the catch was used for baiting purposes by the halibut fishermen. A small portion was disposed of fresh and as kippers. The increase in the United States tariff practically cut off the chief market for herring cured in the Scotch style. Consequently, a few thousand barrels only were cured during the past season. Such as were cured in this way were packed in small packages for disposal in the home markets, especially those of the Western Provinces, where a satisfactory trade is being gradually worked up.



*Pilchards.*—These continue to be as abundant as ever on the west coast of Vancouver island. The bulk of the catch is canned. There were 19,000 cases packed in 1922, as against 16,000 in the year before.

*Other Sea Fish.*—The various kinds of cod were taken in about the same quantities as in the preceding year. The catch of flatfish was greater, there being 12,000 cwts. landed against 4,000 cwts. in the year before. Oysters, clams and crabs were taken in increased quantities.

*Whales and Seals.*—Two whaling stations were in operation during the year and 187 whales were captured. There were 930 fur seals taken during the season by the Indians along the coast.

### INSPECTION OF FISH

During the year 1922 the work of inspection was carried on by a staff of three permanent and ten temporary, or seasonal inspectors on the Atlantic coast, and two seasonal inspectors on the Pacific coast. On the Atlantic coast, 64,000 barrels of herring, mackerel, gaspereau and salmon passed under the eyes of the inspectors who examined them as to the quality and construction of barrels, and the quality, grade and curing of the fish in accordance with the requirements of the Fish Inspection Act.

In addition to the actual work of inspections, packers and coopers were visited periodically and given instructions as to the requirements of the Act. Unfortunately the generally depressed conditions of the markets, together with the effect of the increased tariff imposed by the United States, caused sales of pickled fish to be exceedingly slow and at low rates during the year, notwithstanding the very great improvement in both barrels and fish that has been brought about by our system of inspection. Some are inclined to attribute this slowness of trading in some degree to a gradual getting away from eating pickled fish on the part of those who have hitherto consumed the bulk of our salted herring and mackerel.

Until the past season, pickled herring, mackerel, gaspereau and salmon and the barrels for such, only came under inspection. The Act, however, provides that any kind of cured fish may, by order in council, be made subject to inspection just as soon as necessity and wisdom warrant the taking of such a step. Under this provision it was found necessary last fall to take this step in connection with the dry salted herring trade of British Columbia. This is a very important and growing trade. The product is shipped across the Pacific to China. For some time this branch of the industry has been struggling with a difficulty due to the lack of uniformity in the curing of the fish, the size of the package and the weight of fish contained in them. In order, therefore, to remove those conditions, and with a view to stabilizing the business, a set of regulations was prepared and adopted, after consultation with the packers, by which a uniform method of curing and a standard size of package were established. During the past winter, therefore, curing and packing operations were carried on for the first time under the supervision of departmental inspectors. Approximately 160,000 boxes, each of which contained 400 pounds of fish, were examined by the inspectors. With each lot inspected and shipped, a certificate of inspection was given to the shipper. Our Trade Commissioner at Shanghai referring to this inspection system says: "It will go far to assist the sale of Canadian herring in China for which there is a large market, and also protect both the shipper and the buyer."

While inspectors have no specific authority to deal with the curing of cod, haddock, hake and such like fish, they are instructed to keep an eye on that branch of the industry and by reason of their position to point out defects and indicate improvements.



## SESSIONAL PAPER No. 29

A pamphlet entitled "The Dried Cod Fish Trade," which deals comprehensively with the business from the splitting and salting to the drying and marketing, was issued by the department last year as a guide to officers and to the trade generally. The pamphlet was distributed to individual fishermen and merchants both in the French and English languages, and no doubt will do much towards improving the standard of cure.

## INSPECTION OF CANNERIES AND CANNING FISH

The inspection of fish canneries, the raw material to be used therein, the whole process of canning, the canned product and the labelling and designating of such is carried on under the provisions of the Meat and Canned Foods Act and the regulations made thereunder.

This inspection aims at the extension of trade by improving the quality of the product and the protection of the public by preventing the packing of unsound fish and seeing that all cans of fish are correctly labelled. Imported canned fish is subject to inspection under the Act and must be in accordance with the provisions thereof as to soundness, weight and proper designation.

By a rational and judicious enforcement of the various requirements of the Act, a very marked improvement has been gradually brought about in recent years, not only in the conditions under which canning operations are carried on from a sanitary point of view, but in the quality of the canned product as well. For example, the huge salmon canning industry of British Columbia is now carried on under conditions that could not very well be greatly improved upon.

Numerous defects in buildings and equipment, more especially in lobster canneries, were remedied in the course of the year at the instigation of the inspecting officers.

A number of lightweight cans of lobsters, which were packed early in the season were seized and disposed of in accordance with the regulations, while several shipments of canned salmon, of the home as well as the imported product, were held because of improper labelling.

During the spring of 1922 it was discovered that the Act as well as the regulations, which were amended in 1917 and 1919, contained several sections which were either burdensome to the trade or incapable of proper application; consequently departmental officials met the packers and discussed the whole Act and the regulations with a view to amending both to such an extent as was necessary for the proper protection of the packers and the consuming public and for the betterment of the industry. In due course the amendments agreed upon were made law and became effective at the beginning of the packing season of 1923.

For a great many years a proportion of the annual pack of canned lobsters has caused trouble and loss to the trade because of a discoloration of the meat which took place after it had been in the cans for some time. The department, through the Research Council of Canada, has been endeavouring to find the cause of the discoloration and a result of investigations carried on by Dr. F. C. Harrison, Principal of MacDonald College, both the cause and the cure for it have been discovered. Information was duly conveyed to the industry by means of a pamphlet issued by the Research Council.

## FISHERIES STATISTICS

The work of collecting, compiling and publishing monthly, quarterly and annual statistics of the fisheries was carried on by the Fish Inspection and Statistical Branch through the means of the fishery officers as usual.

In the spring of 1922 an endeavour was made to secure from captains of deep-sea fishing vessels special statistical information as to the quantities and



kinds of fish taken by them on the various banks during the year. The information covered the number of actual fishing days, the location of the ground fished on each day, the catching power used and the quantity and kind of fish caught per day. The number of captains who complied with the department's request for this information was relatively small. It is hoped, however, that a greater number will co-operate next season.

With a view to securing more definite knowledge concerning the movements and size of the bodies of mackerel which strike the coast annually, our fishery overseers in the mackerel fishing districts of the Atlantic coast supplied the department during the season of 1922 with special weekly information covering the first appearance of the fish, the quantity of the various sizes taken, and the kinds of the gear used in their respective districts. The information is intended to be used by the Biological Board in connection with their investigations.

#### BAIT REPORTING SERVICE

The Bait Reporting Service which was instituted on the Atlantic coast in 1913, and which has since been in operation yearly, was again resumed with some modifications owing to changes in conditions which have arisen since the service was first inaugurated. Captains and owners of fishing vessels, as well as others interested, were by means of this service provided with information regarding the catch of bait at various points along the coasts of the Maritime Provinces and the Magdalen islands. Throughout the spring and summer officers of the department gathered information regarding the landing of bait, and submitted it daily by telegraph to certain ports where the information, in accordance with arrangements made, was posted in conspicuous places. The information was also published without charge by the Halifax daily papers. Throughout the spring monthly telegrams were forwarded from the Magdalen islands and North Sydney, Cape Breton, to Canso, Halifax and Lunenburg reporting ice conditions and bait supplies. During July and August, information regarding bait landed at points along the coasts of Halifax and Guysboro counties was telegraphed to North Sydney, Canso, Halifax, Lunenburg, Shelburne, Lockeport and Yarmouth. Similar reports were also forwarded from Lockeport to Halifax and Canso.

#### SCOUTING FOR MACKEREL

Fisheries protection cruisers, while following the movements of the United States mackerel purse-seining fleet, kept track, as in the preceding year, of the location and movement of the schools of mackerel, and sent wireless messages to shore daily, giving the results of their observations.

A full report on scouting and the movements of the fish by the captain of the cruiser *Arras* will be found on page 40.

#### BRITISH COLUMBIA FISHERIES COMMISSION INQUIRY

During the months of August and September, 1922, a commission consisting of certain members of the Standing Committee on Marine and Fisheries in the House of Commons investigated the fisheries conditions of British Columbia. The commission's report, which has already been published and distributed, contained a number of recommendations looking not only to the conservation of the fisheries resources of our Pacific province, but also to removing any disabilities under which the industry was being carried on. As a result of the inquiry, and in accordance with the commission's recommendations, several important changes in the regulations were made, which become effective during the season of 1923.



## FISHING BOUNTY

Under the authority of "An Act to encourage the development of the Sea Fisheries and the building of Fishing Vessels," the sum of \$160,000 is appropriated annually by the department and paid to fishermen of the Maritime Provinces. The bounty is distributed under regulations made from time to time by the Governor in Council.

For the year 1922, payment was made on the following basis:—

To owners of vessels entitled to receive bounty—\$1 per registered ton: payment to the owner of any one vessel not to exceed \$80.

To vessel fishermen entitled to receive bounty—\$6.95 each.

To owners of boats measuring not less than 13 feet keel—\$1 per boat.

To boat fishermen entitled to receive bounty—\$5.35 each.

There were 11,209 bounty claims received and 11,204 paid. In the preceding year, 11,674 bounty claims received and 11,654 paid.

The total amount paid was \$157,172.55, allocated as follows:—

To 624 vessels and their crews.. . . .	\$ 47,478 85
To 10,580 boats and their crews.. . . .	109,693 70

## FISHING BOUNTY EXPENDITURE, 1922-23

County	Boats	Men	Amount	Ves- sels	Tons	Average tonnage	Men	Amount	Paid	Re- jected
			\$ cts.					\$ cts.		
Annapolis.....	149	260	1,540 00	3	152	51	47	478 65	152	
Antigonish.....	109	171	1,023 85						109	
Cape Breton.....	344	619	3,658 65	22	294	13	79	843 20	366	
Colchester.....	1	1	6 35						1	
Cumberland.....	5	7	42 45	1	11	11	2	24 90	6	
Digby.....	407	716	4,237 60	4	120	30	36	370 20	411	2
Guysboro.....	732	1,193	7,114 50	47	702	15	213	2,182 35	779	
Halifax.....	1,229	1,682	10,227 70	73	1,119	15	326	3,384 70	1,302	
Inverness.....	372	857	4,957 20	20	287	14	92	926 40	392	
Kings.....	44	70	418 50						44	
Lunenburg.....	608	748	4,609 75	142	8,269	58	2,086	22,853 70	750	
Pictou.....	40	52	318 20	1	17	17	4	44 80	41	
Queens.....	175	305	1,806 65	14	173	12	50	520 50	189	
Richmond.....	471	837	4,948 45	25	411	11	119	1,238 10	496	
Shelburne.....	564	1,091	6,400 80	26	686	26	192	2,020 40	590	
Victoria.....	273	413	2,482 45	10	144	14	36	394 20	283	
Yarmouth.....	109	243	1,409 05	14	852	61	276	2,770 20	123	
Total.....	5,632	9,265	55,202 15	402	13,237	33	3,558	38,052 30	6,034	2
Charlotte.....	368	631	3,743 75	4	57	14	10	126 50	372	
Gloucester.....	151	367	2,114 00	198	2,921	15	827	8,668 80	349	
Kent.....	88	184	1,072 40	7	71	10	19	203 05	95	2
Northumberland.....	2	6	34 10	1	21	21	5	55 75	3	
Restigouche.....	3	7	40 45						3	
St. John.....	22	36	214 60	1	17	17	3	37 85	23	
Total.....	634	1,231	7,219 30	211	3,087	15	864	9,091 95	845	2
Kings.....	349	484	2,938 10	2	31	15	4	58 80	351	
Prince.....	285	558	3,269 95	5	63	12	12	146 40	290	
Queens.....	97	218	1,263 25	1	14	14	2	27 90	98	
Total.....	731	1,260	7,471 30	8	108	13	18	233 10	739	
Bonaventure.....	309	569	3,352 15	2	22	11	5	56 75	311	
Gaspe.....	2,483	4,829	28,306 50	1	10	10	5	44 75	2,484	1
Matane.....	119	182	1,094 35						119	
Rimouski.....	1	1	6 30						1	
Saguenay.....	671	1,190	7,041 65						671	
Total.....	3,583	6,771	39,800 95	3	32	11	10	101 50	3,586	1
Grand Total.....	10,580	18,527	109,693 70	624	16,464	26	4,450	47,478 85	11,204	5



## FISH CULTURE

The fish cultural operations of the department during the calendar year 1922 embraced the more important fresh water and anadromous food fishes, such as Atlantic salmon in the east, whitefish, salmon trout and pickerel in the interior, and the Pacific salmon in the west.

A portion of the whitefish and pickerel eggs and practically all the salmon trout eggs were obtained from the commercial catch, and the department is, therefore, largely dependent upon the co-operation and the success of the fishermen for such eggs. The bulk of the salmon trout are caught in gill-nets that are ordinarily lifted every twenty-four hours, but during cold and stormy weather are often not lifted for much longer periods. It is therefore not surprising that the eggs obtained from such sources are not of the best quality, but all that are saved by the hatcheries are that much direct gain to the fishery, as they would otherwise be totally destroyed.

The commercial species of the interior were distributed in a free-swimming stage after the food sac was absorbed, on the natural spawning grounds of the larger lakes. The bulk of the salmon in the eastern and in the western provinces was also distributed as fry after the food sac was absorbed, but a larger number than ever before was retained and fed in ponds and enclosures, and liberated in the advanced fry and fingerling stages. The sporting varieties of trout were handled in limited numbers, and, after adequate return was made to the waters in which such eggs were collected, the most of the balance was distributed in public waters, largely in response to applications. Small allotments were made to privately controlled or leased areas on the payment of nominal prices and transportation expenses.

The total distribution of all species was over thirty-three million larger than the distribution of last year and over one hundred and twenty-eight and a half million larger than the distribution of 1920. Several lakes and streams in British Columbia and the Prairie Provinces that are not readily accessible from hatcheries received allotments of fish caught in and transferred from other waters.

## COLLECTION OF EGGS

Atlantic salmon were more plentiful than they have been for years in all the rivers of the Maritime Provinces where hatchery operations were carried on and the full supply of such eggs was readily obtained. This collection could have been increased without difficulty had it been desired. The capture of four hundred and sixty-five salmon on September 23 and of four hundred and fifty on September 28 in the two nets that were operated for hatchery purposes in the Miramichi river is some indication of the present condition of this stream.

All previous collections of whitefish eggs were exceeded in the bay of Quinte and in Georgian bay. The collection in lake Winnipegosis was larger than it has been for several years and was only half a million smaller than the best since the hatchery was established in 1909. There was a small increase in the lake of the Woods and a decrease in lake Winnipeg.

There was a small increase in the total collection of pickerel, which was largely due to a change in methods at the Sarnia hatchery. The collection at this point was increased to eighty-one million from twelve million in 1921.

In recent years conditions have been against a large collection from the commercial nets in the neighbourhood of Point Edward, lake Huron. The run of fish during the early spring and before the spawning period has been satisfactory, but comparatively few were taken during the spawning season in a



## SESSIONAL PAPER No. 29

ripe condition. The unripe fish that were retained in the pound-nets did not develop satisfactorily on account of the low temperature of the water, although efforts were made in 1921 to retain some of the early fish in enclosures close to the nets. This season a portion of the catch of three fishermen was transferred from the nets, a distance of from six to nine miles and retained in pound-net pots in the warmer water of Sarnia bay. The water here was at times as much as ten degrees warmer than it was in the lake where the fish were caught. The higher temperature had the desired results and the fish ripened very quickly. The loss in the retainers was practically nil and the eggs throughout were of high quality. On account of the loss in weight through stripping, the fishermen were paid fifteen cents each for the handling of the fish, which were returned to them after they were stripped. Had this method not been followed, these eggs—fifty-seven million—would have been a total loss so far as reproduction was concerned, as the fish would not ripen in the nets and would have been placed on the market. Under the conditions that have obtained in recent years, not more than four to five per cent of the commercial catch has been ripe when caught.

The collection in the lake of the Woods for the Kenora hatchery has each year since its inception, with the single exception of 1920, been larger than those of all preceding years. This gratifying condition continued during the current season and the collection was over ten million larger than the record collection of 1921.

The establishment of the provincial hatchery at Sault Ste. Marie necessitated a reallocation of the collection areas in lake Huron and Georgian bay previously covered by this department's hatcheries. This reallocation was made on a geographic basis.

Weather conditions generally were more favourable than usual, and although the total collecting area was considerably smaller the total collection of salmon trout eggs from lake Huron and Georgian bay was larger than it was in 1921 and the quality of the eggs was better. In the westerly portion of lake Superior, where the Port Arthur hatchery procures its supply of eggs, the majority of the nets were put out of commission about the middle of October, and owing to continuous unfavourable weather were pulled out towards the end of the month. The collection was consequently not as large as it was last year and owing to the conditions that obtained when they were taken a considerable portion of the eggs was not up to the usual standard. The total collection of such eggs was, however, slightly larger than it was last year.

The total collections of sockeye eggs and of the eggs of all species of Pacific salmon were respectively over three and two million greater than last year and the collection of sockeye eggs in the Fraser River watershed was nearly seventy per cent greater than it was in the preceding cycle year 1918. The run of this species to the Pitt Lake river was at least twenty-five per cent greater than in any year since the hatchery was built in 1917. The run to Cultus lake compared favourably with that of the cycle year 1918, and was about the same as last year. Conditions were greatly improved on the Harrison lake area, where over two million eggs were obtained as compared with seven hundred thousand last year. Morris creek alone produced over one million eggs as against sixty-five thousand last year. The run to the Birkenhead river was heavier than that of last season and almost as good as the banner year 1920. Twenty-six million eggs were collected and not more than twenty-five per cent of the fish available were handled. All the spawning grounds of this area were heavily seeded and in view of this twelve million eyed eggs were transferred from the Pemberton hatchery to other districts above Hell's gate on the Fraser



River watershed, where conditions were not so favourable. These transfers were as follows:—

Stuart Lake hatchery—for the seeding of the Upper Fraser river.....	4,000,000
Cultus Lake hatchery—for the seeding of Eagle river, Shuswap Lake system.....	4,000,000
Harrison Lake hatchery—for the seeding of Morris creek and other streams tributary to Harrison lake.....	2,000,000
Horsefly river—tributary to Quesnel lake.....	2,000,000

The run of sockeye to Owikano lake, Rivers inlet, was similar to that of last year, inasmuch as the streams at the head of the lake that have been disregarded so far as the collection of eggs and the distribution of fry are concerned and have been left to natural propagation, were failures, but those at the lower end of the lake carried good runs and the collection in Quap could readily have been doubled. The run to the district as a whole was fair but unfortunately the severe freshets which scoured many of the creeks did serious damage to the natural seeding. The necessary additions have been made to the hatchery equipment and all the suitable streams tributary to the lake are now being stocked with eyed eggs or fry.

The whole of the Babine lake area was better seeded than last year—although last year was well up to the average—and as well, if not better, seeded than it was in 1918. Pierre creek carried probably twice as many salmon as last year; Fulton river was fairly well seeded; Fifteen Mile, Four Mile and Grizzly creeks and Beaver river were abundantly seeded, and Babine river was well up to the average of all good years.

The conditions in the hatchery creek again demonstrated the value of past operations. The fish were so plentiful that after a collection of eight million one hundred thousand eggs was made there were more in sight than had been handled by the hatchery staff.

The Bulkley river area carried a good run, which was as good, if not better, than that of 1918.

The run of sockeye to the Kitsumgallum area was better than it was last year, and was at least equal to that of 1918. The eggs, however, in 1918 were undisturbed by freshets, while this season heavy rains occurred, and the creeks were flooded which, no doubt, caused some loss.

The aggregate run of salmon to the Lakelse lake district in 1922 was heavy, particularly the sockeye and pinks. The run of spring salmon was only up to the average of recent years. The run of coho was fair and the run of chums small.

The sockeye came in two runs, the second one being very heavy and as late as October, large schools were lying off the mouths of Salmon and Williams creeks. Schallabuchan creek was poorly stocked, but the runs to Granite, Salmon and Williams creeks more than made up for this.

Towards the end of November the severest freshet since 1917 occurred. The upper spawning beds of all creeks were badly scoured and the damage to the natural seeding must have been excessive. The freshets also brought down a large amount of fine glacial silt which sifted into the gravel and buried the lower spawning beds which were not so greatly damaged by scouring.

A great improvement in the sockeye run over that of last year, and also over the cycle year of 1918 was in evidence in Kennedy lake.

After approximately seventy-five thousand sockeye salmon had been captured and canned by the Clayoquot Sound cannery, a plentiful supply reached the spawning grounds. The majority of these were apparently beach spawners and only a small proportion proceeded to the spawning areas in tributary streams. In this connection it is interesting to note that in the past the distribution of the fry was largely confined to the beaches of the lake in the vicinity of the hatchery, and the returning parent fish now frequent those



## SESSIONAL PAPER No. 29

beaches; whilst at other points which have not received the assistance of artificial methods, but where the conditions appear to be in every way favourable for the natural propagation of salmon, poor returns of parent fish were noted. The distribution either with eyed eggs or fry is now being made to all suitable and accessible places in Kennedy lake and its tributaries.

Over nine million sockeye eggs were taken without difficulty, and sufficient parent fish were left to adequately seed the spawning area. The cannery which draws very largely from this area put up five thousand five hundred cases sockeye, which is the second largest pack in its history.

The lake was favourably low during the spawning season, and the loss that is sometimes due to the water receding after the eggs are deposited should be small. Reference was made last year to the probable loss in salmon eggs that in 1921 were deposited along the gravel bars and beaches of Kennedy lake that usually go dry during the low water. No freshets occurred in this district during the following winter, and on April 29 the water was still low. Examination of the beaches showed a heavy loss in eggs, and a much heavier loss in fry after they had hatched on account of the low stage of water. From an examination of these beaches and gravel bars the superintendent of the hatchery estimates that less than one per cent of the fry resulting from last season's naturally spawned eggs reached the open water.

The superintendent of the Anderson Lake hatchery estimates that at least one hundred and twenty-five thousand sockeye reached the spawning grounds of Anderson lake this year as compared with ninety thousand last year. The run of coho was fairly good, being twenty-five per cent greater than last season. A few spring and chum spawned in the outlet of the lake. The natural spawning beds were overcrowded and immense numbers of the early eggs were destroyed by being disturbed and dug up by later spawning fish. Climatic conditions were favourable as no severe freshets occurred to scour the creeks and the water remained at a low level during the spawning season, so that few eggs will be left exposed through further lowering of the water. As the spawning beds were overseeded, a portion of the eggs taken for the hatchery will be transferred when eyed, and planted under suitable conditions in streams tributary to Great Central and Sproat lakes.

There was a good run of spring and a heavy run of coho in the Cowichan Lake district and until December 13 climatic conditions were favourable as the heavy freshets that did so much damage last year did not recur. While more spring salmon were caught the collection of such eggs was smaller than last year as these fish were so green and hard that most of them would not develop their eggs satisfactorily in confinement and had to be liberated. The Superintendent of the hatchery suggests that this earlier arrival at the hatchery nets and harder condition of the fish was due to the removal of obstructions at Skutz falls on the Cowichan river. Previously these obstructions kept the fish from ascending during low water but since their removal there is nothing to prevent their ascent. The same unripe condition was found in the coho but these fish were so plentiful that no difficulty was experienced in getting all the eggs required.



14 GEORGE V, A. 1924

The total collection of eggs of the different species made during 1922 was as follows:—

Atlantic salmon.....	29,397,200
Cutthroat trout.....	660,380
Steelhead salmon.....	99,400
Kamloops trout.....	965,200
Sockeye salmon.....	83,307,835
Spring salmon.....	2,647,360
Albino spring salmon.....	156
Coho salmon.....	1,848,700
Chum salmon.....	3,086,670
Speckled trout.....	552,827
Whitefish.....	599,260,000
Salmon trout.....	42,737,000
Cisco.....	3,500,000
Pickrel.....	234,009,330
	<hr/>
	1,002,072,058

In addition to the eggs collected, one hundred thousand landlocked salmon eggs, two hundred and ninety-three thousand rainbow trout eggs, three hundred thousand cutthroat trout eggs and two hundred thousand speckled trout eggs were received from the Federal and State departments of the United States in exchange for atlantic salmon eggs and one hundred thousand brown trout eggs in exchange for speckled trout eggs.

Under an arrangement made with the Department of Game and Fisheries, concurred in by this department, the officers of the United States Federal hatchery at Cape Vincent, N.Y., collected whitefish eggs in Canadian waters on the Ontario side of the boundary line. This department is indebted to the United States Bureau of Fisheries for a present of 14,000,000 whitefish eggs from the surplus collection at the Cape Vincent hatchery. These eggs were laid down in the Kingsville hatchery. It is also indebted to the Department of Game and Fisheries, Toronto, for 13,120,000 whitefish eggs—7,855,000 were laid down in the Port Arthur hatchery and 5,265,000 in the Kingsville hatchery—and 15,000,000 pickerel eggs that it collected in Hay bay, bay of Quinte. These eggs were placed in the Thurlow hatchery and a portion of the resulting fry were placed at the disposal of the Provincial department for stocking waters that are not as readily accessible from its own hatcheries.

A surplus collection of 1,498,000 salmon trout eggs, included in the above statement, from this department's hatchery at Wiarton was turned over to the Quebec Provincial Government.

#### REARING OF FINGERLINGS

The facilities for feeding fry were enlarged or improved at various salmon hatcheries and the output of advanced fry and fingerlings was greater than ever before. The expansion in this direction at the hatcheries now operated by this department is indicated by the following figures:—

Year	Output
1922.....	28,670,900
1921.....	22,253,000
1920.....	8,539,100

The supplying of the more isolated hatcheries—where cold storage facilities are not available and the means of transportation do not permit of fresh food being brought in from outside points, where it can be procured—is not always an easy matter. Cheap grades of canned salmon and canned whale meat and fishotein are kept in stock and these preserved foods are supplemented by fresh coarse fish caught by the hatchery staffs. The superintendent of the Cultus Lake hatchery has developed several of the smaller creeks that flow into the lake as natural retaining ponds or protected areas in which the fry are retained, without crowding, under practically natural conditions, and allowed to escape to the lake as their growth and consumption of food demand.



## SESSIONAL PAPER No. 29

The results that follow the distribution of eyed eggs and fry in lakes devoid of fish life and in which plankton and other natural fry food is abundant was again fully demonstrated. Such lakes or natural retaining ponds are not numerous, but wherever found are being utilized to the fullest extent. In several instances sockeye distributed in these lakes have in three months attained the size of the average Fraser river fish when twelve months old.

There are numerous salmon waters, particularly in British Columbia which are inaccessible from existing hatcheries, so far as stocking them with fry is concerned. These waters have consequently not been stocked and many of them have become depleted. The surplus eggs that are available in the more productive areas are now, after they are eyed in the hatcheries, being utilized to seed these areas. These eggs are planted in selected places in the gravel of what are known to have been at one time the principal spawning grounds. This work was taken up in a systematic way in British Columbia in 1921, and last summer the most encouraging reports were received from all areas that were so seeded. Immense numbers of fry and fingerlings were seen in waters in which it was known that very few, if any, parent fish had spawned. Several of what were at one time the principal spawning grounds of the Stuart Lake system, the Quesnel Lake system, the Seton-Anderson Lake system and the Shuswap Lakes system—all above Hell's gate on the Fraser—were seeded with eyed eggs from the Pemberton hatchery which is below Hell's gate. Great Central and Sproat lakes, Vancouver island, and several smaller lakes on the west coast were similarly and respectively seeded from the Anderson and Rivers Inlet hatcheries, as were other waters nearer the other establishments.

## ACCLIMATIZATION

Gratifying results are in evidence from the efforts to establish some of the more important food and sport fish in waters to which they are not indigenous. Eastern whitefish in various stages of growth up to four and one-half pounds in weight have been taken in British Columbia lakes; several spring salmon of the Pacific, some of them weighing twenty pounds, were caught in lake Ontario; Atlantic salmon of various sizes from fingerlings to fresh-run fish in prime condition and kelt, on their return to sea after spawning, have been caught in the Cowichan river, British Columbia; black bass are firmly established in Christina lake in southern British Columbia, and several lakes in Vancouver island. Eastern speckled trout are also found in southern British Columbia, and fingerling rainbow trout were this season quite numerous in several of the foothill streams of Alberta in which they were last year distributed from the Banff hatchery.

## MARKING OF FISH

The marking of fingerling and adult salmon was continued in the eastern and western provinces for the purpose of gaining some definite information with regard to the life history of these fish. Thirty kelt caught on their seaward migration, and five hundred and twenty-three adult Atlantic salmon were marked and liberated—the latter after they were stripped at the various retaining ponds—in the Maritime Provinces. The mark used was a numbered silver tag, attached to the dorsal fin. Over one hundred thousand fingerling salmon were marked and liberated at the different hatcheries in the east and in the west principally by the removal of the adipose fin. It is hoped that the recaptures of these marked fish will throw some light on the life history of the species.

The desirability of thorough scientific investigation into all matters that affect the reproduction of fish has been receiving attention, and at the beginning of last year the question of investigation into the life-history of the salmon,



spawning ground conditions, and other related matters, as they affect the Fraser river, was referred to the Biological Board.

The question of the ownership and administration of the fisheries of the province of Quebec—which has been the subject of considerable negotiation and some litigation—was settled by agreement of the Dominion and Provincial Governments. The Provincial Government took over from June 30, 1922, the administration and protection of all the fisheries of the province—with the exception of those about the Magdalen Islands—including the administration of the hatcheries. Under this agreement, the Tadoussac and Gaspé main hatcheries, the Bergeronnes, Ste. Marguerite and Dartmouth, sub-hatcheries, and the Tadoussac and York salmon retaining ponds, with all their equipment, were transferred to the province and are now administered by the Department of Colonization, Mines and Fisheries, Quebec.

At the present time this department is operating thirty-two main hatcheries, seven sub-hatcheries, five salmon retaining ponds, and several egg-collecting and one eyeing station. The distribution of eggs and fish by species during 1922 was as follows:—

Nova Scotia—		
Atlantic salmon.....	9,821,435	
Speckled trout.....	617,996	
		10,439,431
New Brunswick—		
Atlantic salmon.....	10,825,156	
Ouananiche.....	3,650	
Landlocked salmon.....	65,128	
Rainbow trout.....	58,024	
Spring salmon.....	197	
Speckled trout.....	193,950	
Brown trout.....	63,043	
		11,209,148
Prince Edward Island—		
Atlantic salmon.....	1,482,300	
Speckled trout.....	177,028	
		1,659,328
Quebec—		
Atlantic salmon.....	2,914,633	
Speckled trout.....	68,220	
		2,982,853
Ontario—		
Spring salmon.....	194,470	
Whitefish..	323,143,000	
Salmon trout.....	24,211,290	
Cisco.....	3,000	
Pickarel.....	165,797,330	
		513,349,090
Manitoba—		
Whitefish..	206,173,750	
Pickarel.....	10,678,000	
		216,851,750
Saskatchewan—		
Whitefish.....	30,000,000	
		30,000,000
Alberta—		
Atlantic salmon.....	266,177	
Rainbow trout.....	307,600	
Cutthroat trout.....	393,505	
Salmon trout.....	175,935	
		1,143,217
British Columbia—		
Atlantic salmon.....	382,839	
Cutthroat trout.....	213,391	
Steelhead salmon.....	90,038	
Kamloops trout.....	899,343	
Sockeye salmon.....	73,329,557	
Albino spring salmon.....	75	
Spring salmon.....	1,856,930	
Coho salmon.....	1,235,000	
Pink salmon.....	3,878,800	
Speckled trout.....	3,303	
Whitefish.....	9,463,000	
		91,352,276
Total distribution.....		878,987,093



## SESSIONAL PAPER No. 29

## BIOLOGICAL STATIONS IN CANADA

The Marine Biological Board has two stations at which research work is carried on, one on the Atlantic coast at St. Andrews, N.B., and the other on the Pacific coast at Departure Bay, near Nanaimo, B.C. The two stations are equipped with research tables, fresh and salt water taps, chemical reagents, glassware, and a complete outfit of nets, dredges, etc., for deep-sea and inshore investigations.

Gasolene launches and small boats with the necessary crews are at the service of the workers. Each station has a library of representative scientific workers.

The laboratories and residences are open from June until September. The work of the stations each season includes fishery investigations, life-history, growth and food of fishes, faunistic work, biochemical, bacteriological and hydrographic researches, including physical and chemical studies of sea-waters.

The scientific staff for each season consists of several classes of workers.

1. Senior workers who are members of the Biological Board and professors from different Canadian universities.

2. Qualified investigators recommended from various universities.

3. Qualified investigators who desire to undertake any research which has only a very indirect economic bearing.

4. Members of the Biological staff of any Canadian university who desire to collect material.

Apart from evening lectures, the investigators who deal with their own special subject of research, no teaching is done. The directors, however, are ready to give as far as they can, such advice or aid as may be required by beginners.

During the year 1922 the following scientific investigators carried on research as indicated below:—

## ATLANTIC STATION, ST. ANDREWS, N.B.

Nineteen scientists conducted investigations at the Atlantic Station:—

Professor L. W. Bailey: Diatoms.

Professor C. C. Benson, University of Toronto: The Chemistry of fish muscle

Mr. S. W. Britton, McGill University: The temperature-reactions of fishes.

Professor C. J. Connolly, St. Francis Xavier's College: The larvæ of decapods.

Mr. H. S. Coulthard, University of Toronto: The growth of the mussel.

Dr. E. C. Hood, Macdonald College: The bacteriology of fish in cold storage.

Professor A. G. Huntsman: The factors influencing the growth and distribution of marine animals.

Dr. F. S. Jackson, McGill University: The histology of the pancreas of fishes.

Professor A. B. Klugh, Queen's University: The culture of the ostracods and copepods of freshwater pools.

Professor A. P. Knight: Problems in lobster canning.

Mr. A. H. Leim, University of Toronto: The effect of varying temperature, salinity and acidity on calanus.

Mr. J. Murray Luck, University of Toronto: The effects of various salts on metabolism in bacteria.

Professor J. J. R. Macleod, University of Toronto: The occurrence of insulin in fishes.

Mr. Neil McLeod, Jr., McGill University: The life history of the freshwater smelt.

Mr. D. J. MacLeod, Queen's University: Assisting Professor Reed.



Dr. Louis Pare, Montreal, Que.: The bacteriology of canned lobster.

Professor G. B. Reed, Queen's University: The bacteriology of canned lobster.

Miss E. M. Taylor, University of Toronto: The factors determining successful development in certain marine animals.

Miss Margaret Wilton, Queen's University: Assisting Prof. Klugh.

The weekly and monthly collections of plankton and hydrographic material at established points in the Passamaquoddy region have been continued, and daily records of the temperature of water and air at St. Andrews have been taken for more than two years, and are being continued. The study of the success of the spawning of the smelt in the Passamaquoddy region have been continued.

*Field Investigations.*—In place of the usual intensive investigation of a particular region, the work of the *Prince* for the summer season was the following up of the spawning of the mackerel along the outer coast of Nova Scotia. The village of Hubbards, situated on St. Margaret's bay, served as the base for this work. The parish hall was obtained for a laboratory. Professor Philip Cox, of the University of New Brunswick, was engaged at the laboratory in studying the order in the appearance of the mackerel along the coast, and in identifying the fishes obtained. Mr. M. I. Sparks, of the University of Toronto, examined the plankton catches for mackerel eggs and larvæ.

Professor Knight continued, during the latter part of the season at Summerside, P.E.I., his investigations on the natural history of the lobster and on lobster canning.

Professor A. D. Robertson, Western University, London, Ont., continued his studies of the oyster, with headquarters near Bedford, P.E.I. In this work he was assisted by Miss Kathleen Braithwaite, Mr. Claude McCallum and Mrs. Robertson.

Mr. A. H. Leim, of the University of Toronto, studied the life-history of the shad on the Shubenacadie river and Scotsman bay, N.S. Through the International Committee on Deep-Sea Fisheries Investigations co-operation was secured with Newfoundland and the United States in an extensive plan for determining the currents along the Atlantic coast; 1,736 drift bottles have been sent out by the station. Series of bottles were put out as follows: From St. John's eastward across the Grand Bank, through the courtesy of the Newfoundland Government; across Cabot strait by Mr. G. F. Sleggs, of Dalhousie University; from Canso across the continental shelf by C.G.S. *Arras*; and from near Cape Sable across the continental shelf by the Biological Boat *Prince*.

The Department of Marine and Fisheries gave the use of the C.G.S. *Arleux* from July 18 to 21 for conveying Dr. Huntsman and Miss Taylor from the station to St. Mary bay and back for the purpose of procuring living eggs of the cunner for experimental work.

Mr. D. A. MacKay, Ottawa Collegiate Institute, during the month of August explored St. Mary bay, N.S. to determine the presence and the habits of the very young lobsters.

Mr. Harkness, University of Toronto, arranged to carry on some studies, in accordance with Professor W. A. Clemen's plan of work, on Sturgeon Spawning and Experimental Sturgeon Culture of the Great Lakes.

During the week of September 20, Professor Knight and Professor Huntsman gave a number of lectures and demonstrations in the course of instruction for fishery officers at the conference held at Shediac, N.B.

Professor Knight during the season of 1922 continued his bacteriological investigations in and around lobster canneries with a view to improving the quality of the pack. His report on "Sanitation in Lobster Canneries" which



## SESSIONAL PAPER No. 29

was duly published and distributed amongst the canners, is calculated to bring about great and needed improvements in the equipment of the canneries and the methods of packing.

Professor Knight attended the meeting of the Packers' Branch of the Canadian Manufacturers' Association at Moncton, N.B., at the end of November, and laid before it a plan for the grading of lobster canneries, which with modifications was adopted.

## PACIFIC STATION, DEPARTURE BAY, NANAIMO, B.C.

Professor C. McLean Fraser, University of British Columbia: Continued fishery investigations, salmon, halibut, herring, etc., also conjointing with International (U.S.) Committee researches on pile-borers and shipworms, faunistic studies, etc.

Mr. Cyril Berkeley: Biochemical studies on fish and their sea-water environment; bacterial studies.

Miss Mounce, University of Manitoba: Faunistic studies and preparation of biological material for researches.

Mr. H. A. Dunlop, University of British Columbia: Investigations at Harrison Lake hatchery, and spawning grounds into the biology of the sockeye and other Fraser river salmon.

Mr. G. Foerster, University of British Columbia: Fraser river sockeye investigations on Harrison lake and Lower Fraser.

## NATURAL HISTORY OBSERVATIONS

During the summer and fall of 1922 the department's naturalist carried on observations as to the condition of lobsters during the month of June in Neguac bay, N.B., and adjacent waters. He was investigating the condition of the scallop fishery in Mahone bay, N.S., during the month of June. Investigations into the condition of the lobster were also made by him in the strait of Northumberland by the River Philip channel, N.S., Chock Fish river, N.B., before and during the open season last fall.

The naturalist also talked to the fishermen on the nature history and conservation of the lobster at localities on the strait of Northumberland and St. George's bay. These talks were made more interesting by the use of lantern slides.

## INTERNATIONAL COMMITTEE ON DEEP SEA FISHERIES INVESTIGATIONS

This committee was formed in 1921 by the Governments of Canada, the United States, and Newfoundland, in order to form a permanent means of co-operation between these countries in investigations connected with the off-shore fisheries, both those that are in progress and also those that may be undertaken in the future.

During 1922 the Canadian personnel of the committee has been changed by the appointment of Professor J. Playfair McMurrich, vice Mr. Loring C. Christie, who resigned. Two meetings were held during the year, one at Montreal on May 26, and one at Washington on November 10. In order to make better provision for continuity in the work of the committee, Dr. Huntsman of Canada was appointed permanent secretary at the May meeting, and Dr. Moore, of the United States, permanent chairman, at the November meeting.

Among the subjects, in which co-operation between the three countries has been or is being arranged, may be mentioned the following: Improvement in



14 GEORGE V, A. 1924

the collection of statistics of the off-shore fisheries; the investigation of currents by means of drift bottles; and investigation of the life histories of the cod and haddock.

The interest of France, with her colonies, St. Pierre and Miquelon, in the cod-fishery of the Grand Banks has brought forward the matter of her being represented on the committee, and it is expected that she will have such representation in the near future.

In closing I regret to have again to report a loss of life, due to the prosecution of our fisheries. There were fourteen casualties on the Atlantic and one on the Pacific during the year 1922.

I am, sir,

Your obedient servant,

A. JOHNSTON,  
*Deputy Minister of Marine and Fisheries.*



## APPENDIX I.

## REPORTS OF CHIEF INSPECTORS OF FISHERIES

REPORT OF CHIEF INSPECTOR WARD FISHER, ATLANTIC  
FISHERIES DIVISION, FOR 1922

The operations for the year show a gratifying improvement over 1921, notwithstanding the unfavourable weather conditions the first three months prevented any general activity by the inshore fishermen. With the exception of the summer months the demand for fresh fish was heavy, and the dealers had difficulty in filling orders during the fall and winter months. The steam trawlers afforded the only regular supplies for the markets. If it had not been for the landings of these vessels, the fresh fish market, which has been expanding the past few years, would have been jeopardized.

For several years the prices for the landings by the netsmen and handliners were small, and there was little, if any, improvement during 1922. The unfavourable conditions in this respect were very greatly aggravated by the American tariff, resulting in the general discontent of the fishermen, as the buyers were unable to meet the duties on the exports to the United States, and sustained or increased the prices to the fishermen. The industry in this respect became fairly stabilized by the end of the year, as the effect of the tariff became established.

The outlook for 1923 is not very promising, and unless the conditions greatly improve, the restricted markets will seriously affect the industry. It is to be regretted that a very considerable number of our fishing population have either taken up other occupations or have left the country for the United States. It will be difficult, if not impossible, for some years to replace them, and their loss to the industry is to be deplored.

It will be interesting to note that while the total value of the fisheries show a decrease as compared with the banner years of the Great War period, there is a fair increase as compared with the opening year of the war. While the shrinkages in value accompanying the return to normalcy has led to some misgivings in connection with the development of the fisheries, as a matter of fact there has been a gratifying normal increase as compared with the year immediately preceding the war. It should be particularly borne in mind that during the past four years the export trade has been so demoralized that large and valuable markets have been practically closed to our dealers.

The statistics given in this report will be subject to some slight corrections, as the snow blockades which prevailed throughout the Maritime district prevented the prompt collection and preparation of the final reports.

The total number of fishing licenses issued was 22,644, divided among the districts as follows:—

Nova Scotia.....	11,253
New Brunswick.....	8,015
Prince Edward Island.....	2,893
Magdalen Islands.....	483

The following is a resume of the operations by provinces and districts:—

## NOVA SCOTIA

The total landed value was \$7,443,746 as compared with \$7,018,076 the previous year. The marketed value of the cured and prepared product was \$10,209,258.



*District No. 1, Cape Breton—Inspector McLeod.*

The total landed value was \$935,457 as compared with \$767,435 in 1921, or an increase in value of \$168,022. The marketed value was \$1,537,004 or a decrease of \$41,046 from 1921.

Operations were carried on under most unfavourable conditions as the drift ice remained unusually late on the coast, greatly hampering the cod, haddock and lobster fishermen. The dark, rainy weather that prevailed during the summer season made impossible the proper drying of the fish, with the result that a large percentage of it was sold at prices that did not meet the expense of curing. The boisterous fall weather interefered with the mackerel fishing operations at Grand Etang, Margaree harbour and Eastern harbour, Inverness county, during the months of September and October, and practically prevented any fishing at Ingonish and Neil's harbour, Victoria county, in December and January—the period during which largest catches of cod and haddock were formerly landed. The prices for the principal catches were so low that the fishermen ceased operations early in the season.

The lobster fishery was particularly encouraging, the catch being 47,898 cwt. having a value of \$363,078, as compared with 36,215 cwt., and \$160,410 in 1921. The fish were plentiful during the brief period the fishermen were able to operate. The bulk of the catch was made the first three weeks of the season, except off the coast of isle Madame, Richmond county, where few were taken until the last two weeks. The largest catches were landed at Port Hood island, Grand Etang and Mabou Mines. The pack was as follows:—

County	Catch	Value	Pack	Value
		\$		\$
Richmond.....	5,665	45,294	2,190	61,744
Cape Breton.....	16,615	113,894	7,361	222,659
Victoria.....	8,419	66,298	4,147	124,350
Inverness.....	17,199	137,592	8,202	264,694
	47,898	363,078	21,900	673,452

The cod and haddock catch was 207,746 cwt., having a value of \$264,085, as compared with 241,860 cwt., and \$318,555 in 1921. The decrease in the catch was 34,114 cwt. and \$54,470 in value.

The mackerel catch was 38,372 cwt., having a value of \$154,551, as compared with 28,832 cwts., and \$134,363 in 1921. It should be noted that while there was an increase of 9,540 cwt. in the catch and \$20,188 in value, there was a decrease in the marketed value of \$25,860 due to the unusually heavy run of summer fish along the southern coast of Cape Breton county and the northern coast of Victoria county. These catches were so poorly cured that there was small demand, at low prices. Indeed, a portion of the catch had to be dumped after curing.

The herring catch was 26,132 cwt., having a value of \$26,028 or an increase of 3,801 cwt. and \$5,408 in value, as compared with the preceding year. There was, however, a great decrease in the marketed value of the pickled product. In 1921 the marketed value was \$90,226 as compared with \$45,244 for the past year. The increase in the catch was due to the heavy run of spring herring, and the decrease in the marketed value to the failure of the July run on the south coast, which is usually disposed of at about \$10 per barrel.

The catch of swordfish was 5,955 cwt., having a value of \$42,569 as compared with 4,160 cwt. and \$41,139 in 1921.

The salmon catch was 2,153 cwt., having a value of \$24,017 as compared with 1,781 cwt. and \$21,466 in 1921.



## SESSIONAL PAPER No. 29

*District No. 2*—Comprising Halifax county and the counties of Guysboro, Antigonish, Pictou, Colchester, Cumberland and Hants—Inspector Sutherland.

Total catch, 570,517 cwt., having a landed value of \$1,752,906, as compared with 1921 there was an increase in the catch of 61,279 cwt. and \$421,485 in value. The marketed value was \$3,081,463.

Favourable conditions were not general in this district.

While the portion of the district along the Northumberland straits, where lobster fishing is principally carried on, had a very successful year, with a large increase in catch and pack, Halifax and Guysboro counties, which support the largest number of fishermen, did not share very largely in this prosperity. The spring mackerel fishery was a success in these counties but the results were offset by lower prices and the failure of the fall mackerel fishery, owing to the fish keeping offshore. These conditions, combined with exceptionally low prices for cured fish, particularly pickled herring and mackerel, did not tend to make 1922 a success from the fishermen's point of view.

The outstanding feature of the year's operations was the lobster fishery of the Northumberland coast, and the increased mackerel and haddock catches on the Atlantic coast. Only in Halifax county west, and Guysboro county east could the lobster fishery be called a failure. Late drift-ice interfered with the fishery in Guysboro county.

The lobster catch was 63,709 cwt., having a value of \$494,061, as compared with 48,428 cwt., and \$243,057 in 1921. Along the Northumberland straits ideal weather conditions prevailed during the fishing season. In Antigonish county drift-ice prevented operations until early in May. During the year seventy-three lobster canneries operated and 28,763 cases were packed. The pack shows an increase of 7,891 cases over that of 1921. Prices to the fishermen opened at \$6 per cwt. and gradually increased until \$13 was paid in some sections toward the end of the season. The average price, however, was about \$7 per cwt. The pack was as follows:—

	Catch	Value	Pack	Value
		\$		\$
Halifax.....	6,590	66,966	1,446	44,640
Guysboro.....	9,770	76,678	3,345	113,878
Antigonish.....	10,309	83,373	5,176	152,992
Pictou.....	21,390	153,048	11,099	335,935
Colchester.....	60	420	25	790
Cumberland.....	15,590	113,576	7,787	235,574
	63,709	494,061	28,763	883,019

The cod catch was 180,403 cwt., having a value of \$326,869, as compared with 177,782 and \$287,075 the preceding year; or an increase of 2,621 cwt. and \$39,794. The catches were chiefly in Halifax and Guysboro counties, the largest catches being landed at Catch Harbour, Sambro, Terrence Bay, West Dover, Indian Harbour, Tangier, Jeddore, Canso, Liscomb, Drumhead, Mulgrave, Queensport and Whitehead.

The haddock catch was 121,950 cwt., having a value of \$234,668, as compared with 105,113 cwt. and \$208,045 the preceding year; showing an increased catch of 16,837 cwt. and \$26,623 in value. Forty per cent of the catch was taken offshore by steam trawlers landing at Halifax and Canso.

The mackerel catch was 75,095 cwt., having a value of \$342,624, as compared with 33,874 cwt. and \$222,523 the preceding year; showing an increase of 41,221 cwt., and \$120,101 in value.



14 GEORGE V, A. 1924

The outstanding increase was in Halifax West, where 43,295 cwt. were landed. The increase was quite general, but was of the spring run chiefly. It is interesting to note that the catch was the largest for the past ten years.

The herring catch was 68,494 cwt., having a value of \$67,296, as compared with 90,957 cwt., and \$102,639 in 1921; or a decrease of 22,463 cwt. and \$35,343 in value. This decrease was due to small catches in Guysboro county from New Harbour to the Halifax county line. In Cumberland county there was an increase of about 3,000 cwt. The demand for fresh herring was poor, and prices for salt herring very low, consequently there was no great incentive to prosecute this fishery. The best price secured for pickled herring was \$4.50 per barrel, and toward the end of the year dropped to \$3.50. As barrels cost \$1.50 each it will readily be seen that the fishermen had little or no profit, to pay for salt, labour and transportation. Owing to these conditions hundreds of barrels were thrown back into the sea by the fishermen in Halifax county, and are not included in the catch. About 7,000 cwts. were smoked in Cumberland county.

The salmon catch was 4,587 cwt., having a value of \$58,605 as compared with 3,192 cwt., and \$54,028 in 1921; showing an increase of 1,395 cwt., or 44 per cent. Lower prices, however, prevailed than in 1921. Increased catches were made in Pictou county west, Antigonish and Halifax county west. In the first two counties the catch was nearly double that of 1921. For the whole district the catch has increased 167 per cent since 1920. The past year's catch compares favourably with the best catches the past ten years.

The shad catch was 485 cwt., having a value of \$6,487, as compared with 107 cwt. and \$1,845 in 1921. This fishery, which is confined to the headwaters of the Bay of Fundy, shows a fairly satisfactory recovery since the close season of 1918, and although there are no great possibilities, under present conditions, it is of considerable value to the Colchester and Cumberland county fishermen in the Bay of Fundy. It is doubtful if it will stand up under the present two months' open season.

The swordfish catch was 4,713 cwt., having a value of \$32,349, as compared with 1,594 cwt. and \$16,676 in 1921. Of the total catch 1,735 cwt., were taken off the coast of Cape Breton and landed in Halifax and Canso.

*District No. 3.*—Comprising the counties of Lunenburg, Queens, Shelburne, Yarmouth, Digby, Annapolis and Kings—Inspector Marshall.

Total catch 1,792,172 cwts., having a landed value of \$4,755,383, as compared with 1,520,569 cwt. and \$4,919,220 in 1921.

Operations in this district compared favourably with previous years. The fishermen availed themselves of every opportunity that broken weather afforded with the result that the quantity of fish landed shows a gratifying increase over the catch of the previous year. The Lunenburg fleet had an exceptionally good year. The landings of the 92 vessels totalled 900,000 cwts., or 127,125 cwt. in excess of 1921. The markets for the prepared products were, however, very inactive, with the result that the greater portion of the catch was unsold at the end of the year.



## SESSIONAL PAPER No. 29

The lobster catch was 62,099 cwt., having a landed value of \$1,096,709, as compared with 146,390 cwt., and \$1,755,231 in 1921. It should be pointed out that the large catch of 1921 was due chiefly to the especially favourable weather conditions during the regular spring season, and particularly to the special fishing season of six weeks from November first, during which over 30,000 cwts., were taken. The pack was as follows:—

	Catch	Value	Pack	Value
		\$		\$
Lunenburg....	1,220	15,900	142	4,686
Queens.....	2,165	32,449	3	66
Shelburne.....	18,766	329,789	4,551	154,231
Yarmouth.....	29,671	511,429	7,874	258,221
Digby.....	8,922	169,322	1,294	43,850
Annapolis.....	1,175	33,320		
Kings.....	180	4,500		
	62,099	1,096,709	13,864	461,054

The total cod catch was 1,244,233 cwt., having a value of \$2,497,875, as compared with 1,077,581 and \$2,191,302 the preceding year. The largest landings were at Lunenburg, Liverpool, Lockeport, Shelburne, Yarmouth and Digby.

The haddock catch was 104,532 cwt., having a value of \$209,875, as compared with 72,049 cwt. and \$148,423 for 1921; showing an increase in the catch of 32,483 cwt., and \$61,452 in value.

The catch of hake and cusk shows an exceptionally large increase over 1921, the total being 142,767 cwt., having a value of \$114,364 as compared with 42,714 cwt. and \$32,139 in value the preceding year.

The mackerel catch was 53,071 cwt., having a value of \$328,677, as compared with 28,726 cwt. and \$217,251 in 1921.

The herring catch was \$88,512 cwt., having a value of \$94,357, as compared with 61,419 cwt. and \$67,429 in 1921.

The salmon catch was 1,837 cwts., having a value of \$46,310, as compared with 1,311 cwts., and \$33,837 the preceding year. The increase in the alewife catch was over 100 per cent, or 9,746 cwts., as compared with 4,304 in 1921. The increased scallop catch was particularly noteworthy—10,682 barrels as compared with 4,673 barrels in 1921. This increase was due to the catches in the recently discovered areas of the Bay of Fundy. The probabilities are that this fishery will increase, and afford most remunerative employment for an increased number of persons for many years.

In only two fisheries of the district was there a decreased catch. Pollock shows a decrease of 7,582 cwt. and halibut a decrease of 3,410 cwt.

## NEW BRUNSWICK

The total catch was 1,551,377 cwt. having a landed value of \$2,705,783 as compared with 870,229 cwt. and \$2,218,439 the preceding year or an increase of 681,148 cwt. and \$487,344 as compared with 1921.

*District No. 1*—Comprising the counties of Charlotte, St. John, Albert, and the Bay of Fundy watershed of Westmorland county—Inspector Calder.

The total catch was 886,266 cwt., having a value of \$877,365, as compared with 454,323 cwt. and \$645,239 in 1921. The total marketed value of cured fish and fish products was \$1,639,091, as compared with \$1,363,049 the preceding year.



The lobster catch was 7,178 cwt., as compared with 9,012 cwt. for the preceding year, or a decrease of 1,834 cwt. The decrease was chiefly in St. John county. The Charlotte county catch was 5,745 cwt. as compared with 6,854 cwt. for 1921.

The cod catch was 41,435 cwt. as compared with 39,348 cwt. in 1921. The greater portion was landed at Chance Harbour, Dipper Harbour, Beaver Harbour, Wilson's Beach and Grand Manan. The haddock catch is decreasing each year.

The hake catch was 93,503 cwt., as compared with 38,426 cwt. in 1921. The large increase is not so much due to the increase in the run as it is to increased prices paid the fishermen. In 1921 the low prices prevented active operations. Dipper Harbour and Chance Harbour, in St. John county, and Beaver Harbour, Wilson's Beach and North Head in Charlotte county, are the chief centres of the hake fishery.

The herring catch was 157,001 cwt., as compared with 116,275 cwt. for 1921. The catch was almost entirely taken in the weirs at Grand Manan, where a large smoked herring industry has been developed.

The sardine herring catch was 244,553 barrels as compared with 152,300 barrels in 1921. While the catches in the weirs at Campobello and Deer Island were small, the fish were plentiful at Grand Manan. The fishery was, however, without a fair profit to the fishermen, as the average price was only about \$6 per hogshead of five barrels.

In the report for 1921 it was noted that the scales of the herring used for smoking were being utilized by an American Company for the manufacture of a fine quality of artificial pearls. This industry is now permanently located at Grand Manan and afford a most remunerative market for the sale of the scales. \$15,000 was paid the fishermen last year. The company operating, known as The Marine Fish Products Company, after several years' experience in experimenting with the quality of the scales from the herring taken at the Magdalen Islands, and also at certain canneries at Lubec, Maine—discovered that the conditions at Grand Manan were the most favourable, as the scales could be readily secured in a clean, fresh state, within a few hours after the fish are taken from the water. The probabilities are that the operations of the company will be largely expanded, and with great advantage to the fishermen.

District No. 2—Comprising the counties of Restigouche, Gloucester, Northumberland, Kent and Westmorland—Inspector Crocker.

Total catch 706,386 cwt. having a landed value of \$1,803,695, as compared with 414,137 cwt. and \$1,531,543 in 1921; or an increase of 302,249 cwt. and \$272,152 in value.

The lobster catch was 62,376 cwt., having a value of \$567,039, as compared with 59,453 cwt., and \$321,735 in value in 1921. The demand for canned lobsters, and the large expansion of the live-shipped trade, resulted in greatly increasing the prices paid for the catch and explains the large increase in the value as compared with the previous year. The pack was as follows:—

	Cases	\$
Restigouche.....	293	8,805
Gloucester.....	8,664	253,745
Northumberland.....	5,487	157,205
Kent.....	6,121	171,972
Westmorland.....	5,512	181,971
	26,077	773,698

The cod catch was 270,277 cwt., having a value of \$306,908, as compared with 75,361 cwt. and \$118,264 in 1921, or an increase of 194,916 cwt. and \$188,644 over the preceding year. About 80 per cent of the catch was taken in the Caraquet districts of Gloucester county, where a fleet of about 140 small



## SESSIONAL PAPER No. 29

tonnage boats were operated. This fishery was prosecuted with much greater interest than in 1921, as the prices were more favourable.

The mackerel catch was 23,441 cwt., having a value of \$89,306, as compared with 20,911 cwt., and \$69,751 in 1921. While the Grand Anse district of Gloucester County was the chief producing centre, a large proportion of the catch was landed at Shippegan, where excellent facilities exist for caring for the catch.

The herring catch was 207,318 cwt., having a value of \$108,538 as compared with 135,975 cwt., and \$88,951 in 1921.

The alewife catch shows a marked increase over that of 1921, as the demand was much greater. The catch was 22,357 cwt., having a value of \$24,856 as compared with 5,165 cwt. and \$5,272 the preceding year.

The salmon fishery gave a decrease in quantity and a decrease in value, the catch being 13,697 cwt., having a value of \$163,904, as compared with 15,658 cwt. and \$300,978 in 1921, when the prices received by the fishermen were unusually high. In 1922 a considerable quantity sold as low as .06 cents per pound.

The smelt fishery shows an increase in quantity but a decrease in value. The catch was 62,650 cwt., having a value of \$451,844, as compared with 62,041 cwt., and \$519,488 in 1921. The catch was poor in quality and small in size, large quantities being disposed of at .03 cents per pound.

*District No. 5.*—Comprising the waters of the inland counties of Kings, Queens, Sunbury, York, Carleton and Victoria—Inspector Harrison.

The total catch had a value of \$24,723.

While the waters of this district are highly prized by sportsmen, there are several interesting commercial fisheries carried on, such as shad, pickerel, sturgeon and whitefish. The shad fishery is again falling-off since the reopening of the fishery after the close period, and it would appear that the fishery should be closed for another period of years or extinction will soon follow. The catch the past year was only 1,224 cwt., valued at \$7,344, as compared with 2,055 cwt. and \$20,550 in 1921. The pickerel catch was 24,200 pounds, sturgeon 11,100 pounds and whitefish 1,500 pounds. Caviar, or sturgeon roe sold at \$1.50 per pound. The salmon catch was 42,400 pounds.

The fisheries of these waters, by their very nature, are subject to conditions that do not obtain in the regular commercial fisheries. Weather and water must needs be favourable, particularly with respect to the salmon fishery, in order that fish may ascend the rivers to the spawning areas.

The superintendent of the Tobique Salmon Club reported an unusually large run of salmon the fall season. He writes:—

“I am puzzled about the big run of large salmon that appeared in the lower part of the Tobique the last week in October. For about eight miles up the river was full of them. They made their beds and spawned there. There were no fish there until the time I mention, and salmon will never come down the river to spawn. When my wardens called my attention to them I made several trips there to watch their movements. They spawned and covered their beds on the 2nd, and 3rd of November—the latest I have ever known salmon to spawn. The salmon that had spawned at the head waters were passing out of the river when they (the late ones) were on their beds. The fish were so dark coloured that I did not think they were fresh from the sea. I am inclined to believe they were somewhat late in arriving at the mouth of the Tobique, and remained there on account of the very low water, but why were they so late in spawning? You may know something about this run of fish”.



The explanation of this unusual run may be that the very low water conditions prevailing during the summer may have hindered the ascent of salmon, and therefore when they reached the mouth of the Tobique they were close to the spawning period and ascended the cooler waters for this purpose.

#### PRINCE EDWARD ISLAND

Total catch 198,243 cwts., having a landed value of \$904,659, as compared with 152,591 cwt. and \$468,791 the preceding year. The marketed value was \$1,612,599 as compared with \$924,529 in 1921.

The lobster catch was \$87,583 cwt., having a landed value of \$651,449, as compared with 63,816 cwt. and \$255,264 in 1921. The fishery was prosecuted with great activity and success. Over 69,000 more traps and 25 more canneries were operated than in the preceding year. It will be noted from the following statement that the value of the pack,—\$1,267,731 was about 30 per cent greater than the landed value of the total catch for all varieties of fish. The pack was as follows:—

	Cases	\$
Kings.....	16,329	481,294
Prince.....	17,467	531,202
Queens.....	8,424	255,235
	<hr/> 43,220	<hr/> 1,267,731

The cod catch was 31,493 cwt., valued at \$44,069; a decrease of 1,829 cwt. as compared with 1921. The demand was poor and the prices of supplies high, consequently little general effort was made to engage in the industry.

The mackerel catch shows a small decrease, 7,729 cwt., as compared with 8,204 cwt. in 1921. The spring run was a failure to the netsmen, although a considerable quantity were taken by hook and line.

The herring catch was 39,407 cwt., having a value of \$48,528, as compared with 30,441 cwt. and \$32,874 in 1921. The spring catch in the district from Morell to East Point was insufficient to supply bait for the lobster fishermen of that district and supplies had to be secured from the Magdalen Islands. On other portions of the coast the supply was adequate.

The smelt catch was 9,442 cwt., having a value of \$64,879; showing a decrease of 1,040 cwt. and \$2,042 as compared with 1921.

The oyster catch shows an increase of 1,419 barrels over the preceding year, or 5,211 barrels, valued at \$34,525, as compared with 3,792 barrels and \$25,669 in 1921. East and West rivers and tributaries, and also Vernon, Seal and Pownal rivers are well stocked with young oysters, with the probability that there will be increased catches in 1923. In the Richmond bay district the areas appear to be recovering from the blight of the past eight or ten years. The outlook for Grand river particularly, is good. The Orwell river beds were not fished, as the oyster meat showed a greenish tint and it was feared by the fishermen and buyers that the beds were diseased. An examination, however, showed that the tint was the result of local food conditions, and the tint, instead of having a detrimental affect on the quality, was of distinct advantage, as oysters of this character are highly esteemed by epicures, as the meat is usually plump and palatable.

Large districts of formerly heavy producing areas are so badly silted that the spat cannot catch. Alberton bay and adjacent districts are now barren. Oyster culture work is much needed, and it is hoped that early attention may be given to the revival of the oyster industry, not only in Prince Edward Island, but also in Nova Scotia and New Brunswick, where the possibilities of developing a large and profitable industry are excellent.



## SESSIONAL PAPER No. 29

## MAGDALEN ISLANDS

Total catch 266,904 cwt., having a landed value of \$412,513.

The islands were included in the Atlantic Division for the first time last year, and placed under the supervision of Inspector Gallant, with two efficient resident officers, Messrs. Arsenault and Chiasson, who are both supplied with motor-boats and give their whole time to the work.

The four chief fisheries are the lobster, herring, mackerel and cod, and are carried on with the following results:—

The lobster catch was 26,258 cwt., having a landed value of \$147,888, or an increase of 1902 cwt. and \$50,464 as compared with 1921. The pack was 12,943 cases, valued at \$379,048 as compared with 12,178 cases and \$272,313 the preceding year.

The herring catch was 135,246 cwt., having a landed value of \$41,239. The catch for 1921 was 103,938 cwt., valued at \$51,969. The market for the pickled product is very small, with the result that the greater portion of the catch has to be disposed of for bait, and the demand for such use has greatly decreased the past few years.

The cod catch was 27,660 cwt., having a value of \$41,482 showing a small decrease as compared with 1921.

The mackerel catch was 50,010 cwt., valued at \$166,455 as compared with 22,858 cwt. and \$91,432 in 1921, showing an increase of 27,152 cwt. and \$75,023 in value. In the first and second weeks of June a very large catch was obtained. As the facilities for taking care of the catch was poor the quality of the cured product was inferior, with the result that it had to be disposed of at a low price. A considerable quantity was taken with hook and line, for which good prices were realized.

Improved transportation connections with the mainland, and lower freight rates are greatly needed. Until such are secured little or no improvement in the fishing industry can be expected.

## INLAND AND RIVER FISHERIES

With the exception of a few districts the conditions affecting the inland fisheries are improving. Especial attention continues to be given to the prevention of pollutions and obstructions, and while it is quite impossible to afford adequate protection and supervision of the multitudinous rivers and lakes in the division, the results are fairly satisfactory, with the probability that increased catches will be taken by netsmen and anglers.

In Nova Scotia the anglers had a good year. On the St. Mary's, Guys-boro county, both netting and angling shows a decided improvement. One angler captured 55 salmon. Conditions on the Medway, Queens county, were more satisfactory than for some years.

The fall run of salmon was exceptionally heavy in all the rivers frequented by the fall run of fish. There is a growing demand that a special fishing season should be provided for the capture of these fish. East River, Sheet Harbour, Halifax county—one of the best salmon rivers—is being taken over by the Nova Scotia Power Commission to supply hydro power for Pictou county. A number of dams will be constructed during the coming summer; the one at Malay's falls, immediately above the finest pool on the river, will be the chief obstruction. While fishways will be constructed through all the dams in the main river there is little doubt but what the salmon run will be greatly interfered with, and this river as well as West river, Sheet Harbour, which supplies power for the Sheet Harbour Lumber Company, will cease to be considered one of the important salmon rivers.



In New Brunswick there was a heavy June run on the Miramichi and Restigouche, with the result that the head waters were well stocked. Fly fishing was excellent. The fall run was exceptionally heavy. In the netting district of the Miramichi the destruction of salmon by the constantly growing seal herds is a menace to the fishery and difficult to overcome.

On the St. John river and tributaries water conditions prevented successful angling. On the Tobique the anglers had a successful season.

Trout fishing was good throughout the whole of the Maritimes and afforded excellent opportunities to the large sport loving population.

#### FISHERIES PROTECTION SERVICE

During the past three years this service has been undergoing a thorough revision. Previous to the organization of the Atlantic Division for the purpose of closer and more economical supervision, there were thirteen boats owned by the department and in addition, five ships of the Naval Department, employed in Fisheries Protection service.

As this service was quite expensive and not wholly satisfactory, it was determined that in all suitable localities the fishery officers should be required to furnish motor-boats as part of their essential equipment, for the purpose of more effectively patrolling the waters of their districts. This policy is being gradually extended and perfected; thus relieving the department of the necessity of maintaining many of the patrol boats. As a consequence, three more of the boats will be disposed of the coming year. Only five boats of the original thirteen of the smaller craft, and two of the five Fisheries cruisers will be maintained.

The cruiser *Arleux*, Captain Milne, has the Bay of Fundy and Western Nova Scotia district, and the cruiser *Arras*, Captain Barkhouse, the remainder of the Atlantic coast waters of Nova Scotia, and also the Northumberland straits. Both ships, however, can be used on any part of the coast, when considered necessary. The following are summaries of the work performed by these vessels:—

#### *Arleux*

April 20, cruised the western division watching United States fishing craft; in the Bay of Fundy searched the sardine carriers to ascertain that they carried no fishing nets, etc. Searched the Bay of Fundy shores for breaches of the lobster fishing regulations, seining for herring, and the use of dynamite in capturing herring and pollock, carefully watching the fishing boats during the Sunday close season.

May 10, mackerel scouting on Brown's Bank, observed the advance schools of mackerel arriving on the eastern edge of the bank; followed these schools as they proceeded westerly along the coast showing intermittently.

June 15, at Canso following the United States seiners en route to home ports.

June 27, cruised the Bay of Fundy in search of illegal lobster fishing, destroyed a number of traps illegally set; also watched the large number of boats drifting for salmon off St. John county.

July 13-15, locating the distance off shore of the beds on which the boats were fishing scallops off Digby and Annapolis counties. On the 26th returned to the shores of southern Nova Scotia waiting for the incoming droves of sword fishermen from the United States and assisting the local fishery officers as required.



## SESSIONAL PAPER No. 29

August 1, received orders to proceed to the Northumberland straits and the northern shores of New Brunswick.

August 12-15, at Magdalen islands. On return to the mainland cruised the fishing grounds from Chockfish river to Caraquet and along the northern shores of Prince Edward Island. In this district a determined effort was made to fish lobsters during the close season. Destroyed a large number of traps illegally set and by remaining on the fishing grounds day and night prevented their illegal operations, causing them to discontinue same. Remained at these duties until October 7 when the ship returned to her station west of Halifax to follow the United States seining vessels catching the fall run of mackerel along the Nova Scotia coast.

October 23 to November 3, calibrating the wireless direction finding stations at Chedabucto and Red Head.

November 4, proceeded to the counties of Annapolis and Digby searching for illegal lobster fishing and new scallop beds. On the 10th obtained the loan of a scallop drag and dragged along Digby neck. On the 11th located a scallop bed off Whale Cove and another off Centreville. This latter proved to be the best scallop bed yet found.

December 4, proceeded to the southern shore of Nova Scotia watching a large number of United States fishing vessels that were using Shelburne as a base of operations, also standing by to assist the Lockport fishermen if required.

December 19 until the time of laying up, cruising the southern shore of Nova Scotia assisting vessels in and out of the harbour obstructed by ice.

On January 11 the ship was laid up and the crew discharged.

### *Arras*

The *Arras* was commissioned at Halifax, N.S. on April 1, 1922, and on April 3 proceeded to sea on patrol work on the western coast of Nova Scotia, the ship cruised, on the west coast of Nova Scotia until May 1, then we proceeded to the vicinity of cape Sable and took up the duties of mackerel scouting. The first mackerel was sighted on May 10, we then followed the fish as they worked east along the coast, reporting all movements of fish to you.

The ship followed the fish to bay Chaleur where the last schools were sighted on June 22.

The ship then proceeded on her cruising station on the eastern division, keeping in close touch with all fishing vessels working on the coast.

On July 1 the ship was taken from the Department of Naval Service and placed under the Marine and Fisheries Department

The ship was kept cruising on her station until August 9, we then proceeded to Louisburg to watch the American sword fishermen working along our coast. The ship remained with the swordfishing fleet until September 5 when the last vessel left our coast. We then proceeded west with the swordfishing fleet to cape Sable, then we returned east along the coast keeping close watch on all American fishing vessels.

September 20 we proceeded to Prince Edward Island waters to watch the American mackerel seiners during the fall fishing season. We cruised on our station until October 15. We then proceeded to Canso to calibrate the D. F. Station; we then proceeded on our station until December 4 when we were ordered to Canso, N.S. to protect the Canso fishing vessels during the winter haddock fishing season. We remained with the Canso fleet until January 10, 1923, we then proceeded west and took up station on the west coast of Nova Scotia, assisting the fishing vessels and in keeping the ice broken in Lockeport



harbour. We cruised on the western station until February 28 when the ship was laid up at Liverpool and all crew paid off except the captain, chief engineer and boatswain and oiler who were kept on for watchmen.

On March 28 the ship was taken in hand by the contractors for her annual refit.

We had very little illegal fishing on our station during the year. We always kept in close touch with American fishing fleet and watched every water where the Americans fish.

During the year we had 79 American fishing vessels on our station which we boarded and examined 142 times.

We had 26 American swordfishing vessels in our waters and 85 Canadian swordfishing vessels. These vessels came from all parts of Nova Scotia and made headquarters at Louisburg during the swordfishing season.

During the year we steamed 12,699 miles and were at sea 1,402 hours and consumed 1,201 tons of coal.

#### THE LOBSTER FISHERY

The importance of the lobster fishery is becoming increasingly apparent, as is evidenced by the unusual activities of both fishermen and packers. It is the most highly prized, and most vigorously prosecuted, of any of the fisheries of the Atlantic coast, as it affords most remunerative employment, and ready returns, to a large number of persons. Last year, 13,445 fishing licenses were issued, as follows:—

Nova Scotia.....	11,252
New Brunswick.....	2,609
Prince Edward Island.....	1,831
Magdalen Islands.....	374

About 1,210,000 traps were operated. The number of canneries in operation was 546. The total catch was 357,632 cwt., having a value of \$3,580,450. The total pack was 145,779 cases, valued at \$4,433,154 as compared with 130,469 cases and \$2,822,040 in 1921, or an increase of 15,310 cases and \$1,611,114.

The market for canned lobsters was active, practically all the supplies being exhausted within the first three months, resulting in unusual preparations by the fishermen and canners, and in exceptionally high prices being paid for the catches and pack of the early spring season, which opened in western Nova Scotia March first.

The demand continued strong throughout the year. The increase in the number of fishermen and in the traps operated was the greatest for any single year in the history of the industry. The June catch in the Cape Breton district from Pleasant bay to Margaree harbour, Inverness, was over five times greater than for the same month of 1921. In Cumberland county the increase in fishermen and quantity of gear used was about 200 per cent, and the number of canneries in this county increased from six to eleven. The unusual activities resulted in many instances in the available supply of fish becoming exhausted before the end of the various fishing seasons. It should be noted that similar conditions also obtained in New Brunswick and Prince Edward Island.

The one sore spot was western Nova Scotia, particularly the consistently large yielding district of Yarmouth and Shelburne counties, where the decrease in the catch and pack was over sixty per cent, which may be attributed in part to the large catches taken during the special fishing season of the fall of 1921, and in part to the fact that the weather conditions prevailing throughout the spring fishing season were not nearly as favourable for successful operations as prevailed the previous spring.



## SESSIONAL PAPER No. 29

The decrease for western Nova Scotia was 17,000 cases, that for Yarmouth being 6,758 cases and for Shelburne 7,040 cases. Notwithstanding this extraordinary decrease the total pack for the whole province shows a decrease of only about 3,750 cases.

The present regulations require revision, as the conditions in some districts have greatly changed the past few years. It is probable that the revision will take place the coming year, and will needs be made with great care, as the problem is a most vexed one, since a satisfactory re-arrangement of the fishing divisions and seasons is difficult. In any event the preservation of the industry should have first consideration.

## THE DRIED FISH TRADE

Attention has been called in previous reports to the failure of our dried fish trade to hold certain important export markets, particularly Cuba. The Trade Commissioner for Cuba, Mr. G. R. Stevens, reports that the quantity of cases of dried fish exported from Canada dropped from 80,137 cases of 100 pounds in 1921 to 34,127 cases in 1922. Since the war Norway is regaining much of the trade formerly held by that country, notwithstanding that every advantage is with Canada, as Norway is several thousands of miles further from Cuba than Canada, and is forced to rely on a monthly steamship service, with much heavier freight rates.

The commissioner states that there are only two influences favouring Norwegian fish, and of these only one is important. The lesser advantage of the Scandinavian fish lies in the willingness of some Norwegian exporters to forward fish upon consignment. This is an attractive method of merchandising for the importer, and with reliable consignees, the returns from such shipments will probably be satisfactory. But consignment business in almost any line of export tends to run itself into the ground, and it is particularly apt to do so in Spanish-American countries. On the other hand, some of the Norwegian shippers are demanding more stringent terms of payment than the Canadian shippers, and although their fish keep no longer, is not better packed, nor superior in any way except appearance, they are beginning to command the market. The reason and its solution are simple; the Canadian shippers have been trying to make Cuban importers buy black nape fish; and they will not touch black nape codfish while white nape are to be had.

The difference in price between the white nape fish and the black nape is 50 cents per hundred pounds, and there is every reason to believe that Canadian fish need not undersell Norwegian fish if the black nape is removed, but can drive them from this market through advantages of freight and proximity, and at the same time obtain higher net returns for the Canadian exporters. The Cuban agents of the Canadian fish exporters, the steamship companies which carry the fish, and many foodstuff distributors believe this, and they are really in a position to know.

The Lunenburg dealers have taken a favourable view of the representations of the Trade Commissioner and it is quite probable that white-naping will be adopted the coming year.

## COURSE OF INSTRUCTION

The third annual instructional conference of fishery officers of the Atlantic coast was held at Shediac, N.B., beginning September 20.

Four addresses on "Sanitation in Lobster Canneries" were given by Dr. A. P. Knight, Chairman of the Biological Board. These addresses were most timely, as the revised regulation governing the subject had recently been adopted after close investigation by Dr. Knight and his assistants.



The lobster fishing and canning industry of the Maritime provinces is valued at about seven million dollars annually. Efforts to improve the quality of the canned product and to ascertain the best methods to be adopted to avoid discoloration of the contents of the tins have been under investigation by the department for some years, as the annual loss to the dealers and exporters has been heavy. The systematic and persistent experiment and investigations, under the leadership of Dr. Knight, were taken up some three years ago, and as the result of the adoption of many of his suggestions, a very decided improvement in the quality of the goods has taken place.

The lectures and demonstrations given at the conference on the need of providing the highest possible sanitary equipment of the canneries, and methods of packing and processing, elicited the keenest interest and debate, and will be of undoubted value to the officers in administering the provisions of the Meat and Canned Foods Act and regulations.

The addresses by Dr. Huntsman on "Conditions in the Water," and "How Typical Food Fishes Live," were unique not only in the method of presentation, but also for the manner in which they were illustrated.

Without doubt, the addresses and demonstrations given by Doctors Knight and Huntsman, with the assistance of Andrew Halkett, the naturalist of the department, were the most systematic, important and interesting ever given in Canada for the training of fishery officers.

The conference was of a most serious mind, and the intentness with which the work was followed gave evidence that the officers fully appreciated the need of the special training being given.

The second part of the program dealt with "Administration" and "Methods of Work," and was confined wholly to discussion and interpretation of the provisions of the regulations, and better methods of supervision and protection. The presence of W. A. Found, Assistant Deputy Minister, was much appreciated, and his addresses not only to the point but highly illuminating.

Special emphasis was placed on the attitude that should be taken by the officers in dealing with the fishermen and others engaged in the industry. Co-operation, encouragement and good judgment were shown to be essential qualifications for efficient service. Happily the past few years a much better understanding has been arrived at, as the officials and the trade have come to the conclusion that their interests are identical. The encouragement of the industry and the betterment of the trade must always have first place. The regulation of the fisheries and the enforcement of the laws are matters largely of detail in conservation and protection, but are both of great importance if the industry is to be wisely administered. Without adequate knowledge of actual conditions and the requirements of the industry, confusion is bound to result. It was urged, therefore, that it is important that the officers should be in a position to intelligently discuss any problems that might arise, in order that the department may be advised as to the best methods to be adopted in the regulation and administration of the fisheries of the Maritime provinces.

#### SPECIAL MATTERS

(1) *Mackerel Seining*.—For some years past the American fishermen have had a considerable fleet of mackerel seiners operating off Nova Scotia coast with considerable success, and this fleet was augmented by a number of additional vessels the past year.

Little or no effort was made by the Nova Scotia fishermen to engage in this industry until the past year, when the following vessels, outfitted for



## SESSIONAL PAPER No. 29

mackerel seining: *Helen G. McLean*, *Helen M. Coolen*, *Douglas B. Conrad*, *Nellie Banks*, *Yafico*, *D. C. Mulhall*, *National II* (gasoline), and *Lemberg* (steam trawler).

In addition three purse seines were operated from small boats in the Halifax district.

The opportunities for large catches were not as favourable as usual as the mackerel schools skirted the coast close to the shore, to the advantage of the net fishermen but to the disadvantage of the seining fleet, as such fishing is prohibited within the three mile limit. Several of the Nova Scotia fleet made very good catches, particularly the *Helen G. McLean* and the *Helen M. Coolen*.

(2) *Transportation*.—The handling and marketing of the large supplies of mackerel taxed the ingenuity, often the patience of the dealers, as the transportation facilities were poor, particularly along the south coast to Yarmouth, where the conditions were most unsatisfactory. Shipping by the Halifax and Southwestern Railway is a gamble, as the rails and roadbed are too light and poor for heavy shipments, with the result that large quantities of fresh mackerel arrived in Yarmouth too late to make steamer connection for Boston.

In the extended and valuable coastal fisheries district from Halifax to Guysboro, the lack of suitable transportation severely handicaps the industry and offers little hope for development of the fisheries of the district. A railway line, or more adequate steamship service, is essential.

(3) *Cold Storage*.—The fishermen of Cape Breton have been handicapped by a lack of proper cold storage facilities. A company has been organized at North Sydney and the work of construction of the plant is now under way and it is expected that the plant will be ready for business in the early spring; 165,000 cubic feet of space will be devoted to fish storage.

The Universal Fish Company constructed a general fishing plant at Hubbards, Lunenburg, with the intention of operating a fleet of six vessels for halibut fishing, mackerel seining and salt fishing.

At Shippegan, N.B., the Monarch Cold Storage Company have converted the dog-fish plant, formerly owned and operated by the department, into an ammonia process freezer. The fish are conveyed by endless belt some 600 feet from the wharf to the freezer. This plant is valued at \$25,000. Shippegan is well equipped in this respect, having five cold storage plants.

(4) *Improved Canning Conditions*.—About thirty new lobster canneries have been constructed, nineteen being on Prince Edward Island, where also 16 canneries have been thoroughly reconstructed or otherwise renovated. The quality of the pack continues to improve, as a result of the investigations and educational campaigns carried on the past three years. The revision of the regulations, which will probably be completed the coming summer, will further assist in improving the pack, as special provisions contemplate requirements with respect to sanitation and equipment that will bring canning operations to a high standard.

(5) *New Markets*.—Several of our firms have shown great enterprise in endeavouring to open new markets for our fish products, both in Canada and in foreign countries. Experimental shipments to distant ports hitherto untouched were encouraging. It is apparent, however, that any real success depends on preparing the products in such manner as to meet the peculiar demands of the trade.

The retention or development of the foreign markets for dried and pickled fish has not been an easy task, as the general disruption of trade, due largely



to the exchange situation, has been an unfavourable governing factor. And in addition, the endeavours of competing countries to dispose of large stocks has added to the difficulties of our merchants.

#### APPRECIATION

Appreciation of the earnestness with which the officers have performed their duties is a gratifying privilege. The work was fully up to expectations. While the organization of the Atlantic Division followed the termination of the great war, with all the vexing problems involved in a return to peace conditions, our officers have quite generally exercised a wholesome spirit of co-operation with those engaged in the various branches of the fishing industry.

#### MACKEREL SCOUTING, 1922

*Report by Captain Barkhouse of C.G.S. "Arras"*

#### SPRING

Mackerel were located in the channel between George's bank and Brown's bank on May 10. This body of fish was moving slowly northward and approaching the southwestern edge of Brown's bank, they were very wild and only showed at short intervals. The same evening another school was located on the western edge of Brown's bank; this latter school was 68 miles southwest magnetic from cape Sable. All the above fish were halted in their northerly migration by strong northerly winds, which caused them to work around the southeastern end of Brown's bank and approach the Nova Scotia coast in the vicinity of Cape Negro.

The weather then became unfavourable and fish were not located again until May 16, when a large body was sighted coming in between Brown and LeHave banks. These fish were showing on a frontage of four miles. The following day this body was scattered and formed in many small schools on the western edge of Brown's bank and in the channel between LeHave and Brown's bank.

On the 19th a large body was sighted 10 miles west of Seal island. This body was working fast up the west coast of Nova Scotia and the first catches were made in the traps at Cranberry head on May 20.

The first body approached the coast near cape Negro and the first catch by seines was made by the trawler *Surf*, which filled up on the night of May 23. These mackerel followed the coast line right to Prospect, where on the 26th and 27 large hauls were made in nets and traps. On the 30th the fish were on Sambro bank and American and local seiners were filling up. These fish held the coast and large catches were made by seiners and shore nets.

On the 5th of June the fish had reached Northern Cape Breton waters and many were taken at Ingonish. They took the channel between cape North and St. Paul's island and went on towards Magdalen islands, where many were caught on the 16th. The last schools were sighted between Magdalen islands and the north side of Prince Edward Island. The fish then stopped schooling and apparently went to the bottom. It was seen that all nets set near the top of the water produced no fish whilst those set towards the bottom were very successful. On the 20th between Miramichi and Miscou island 125 sail boats were taking mackerel with hook and line. We then cruised between Anticosti island and Gaspé but no fish were sighted.

On June 19 I examined fish taken at Malpeque. They were only partially filled with spawn, but the fish taken by hook and line off Miscou on the 21st showed no spawn at all.



## SESSIONAL PAPER No. 29

This year the mackerel were much nearer the coast line than previously. This, I think, is in a large measure due to the immense quantities of mackerel feed, a small fish known to fishermen as "All Eye", which was on the coast this year. This is the first year since 1906 that these small fish have been seen in large quantities, and in the above named year mackerel frequented our harbours practically the entire summer.

The waters of Halifax and Guysborough counties were this year covered with a slimy substance, which greatly interfered with nets and seines. It is not known what caused this slime but it was observed that the mackerel feed previously mentioned was mixed in with it and in all probability fed on it.

It may be pointed out that there is a greater interest being developed in mackerel fishing. This is evidenced by the fact that this year seven Canadian seining vessels and one Canadian trawler operated on our coast. This is the largest number of purse seining vessels that have ever operated here and I think the interest now being displayed by our fishermen is largely due to the efforts of the department.

All the vessels kept in close touch with us and received all the information we were in a position to give them.

## FALL

The migration of mackerel from the lower Gulf of St. Lawrence towards southern waters was carefully noted this fall, as this was the first time the work has been undertaken by the department I gave all my time and experience to the work.

We have discovered that the mackerel move, after schooling, in large waves or bodies. This fall the mackerel moved out of the St. Lawrence in three waves and about two weeks apart, the mackerel during the time of each wave passing were showing in small schools on a radius of 40 miles along the coast.

The mackerel were first noticed schooling on August 25 between East Point P.E.I., and Magdalen island. The first large body of mackerel moved very rapidly and passed out of the Gulf between cape North and St. Paul's island, following the coast of cape Breton it passed Scatarie island September 2 and moved west along the Nova Scotia coast. Large catches were taken in Chedabucto bay, St. Margarets bay and off Liverpool. We followed this body of fish as far as Shelburne and then returned to the lower St. Lawrence.

The second large wave or body of mackerel moved out of the gulf on September 15, this body of fish was slower in moving along the coast. Part of these mackerel passed south through the strait of Canso, but the largest body passed out between cape North and St. Paul's island. These fish held close to the shore and large catches were made as they passed along the coast at Chedabucto bay. Boats along the coast of Nova Scotia did very well.

The third and last large body of mackerel passed out of the gulf on October 11. This body of fish was first sighted on October 2. It seemed very slow in moving. We followed this body along the coast as far as cape Sable where the last fish were sighted on October 28.



REPORT OF CHIEF INSPECTOR G. S. DAVIDSON, CENTRAL  
FISHERIES DIVISION, 1922

I have the honour to submit my annual report on the fisheries of the Central Fisheries Division for the year 1922.

A decrease in production for the year 1922 will be noted, which may be ascribed, to a great extent, to the long open fall and early part of the winter fishing season; ice sufficiently strong to allow of the fishermen carrying on operations from the ice, not forming until well on into December. This undoubtedly caused a very considerable reduction in amount of fish produced.

In the province of Alberta, northern portion, which contains the commercial fisheries, conditions have not altered greatly from those reported last year. The prices obtained for the catch, and the market for same being about the same.

The operations at lake Athabasca which were reported in 1921, as having been commenced, were not carried on this season. Difficulty in obtaining a market for the product of the cannery, uncertain transportation and difficulty in placing the product on the market being the chief reasons for the stoppage of operations, and until these two difficulties are overcome it is hardly possible that success can be obtained in these operations.

Winter fishing operations in three restricted areas on Lesser Slave lake have been carried on this year for the first time, and as far as can be judged at the close of the year had been successful; though a considerably higher proportion of whitefish were taken during the operations than had been anticipated. Request was made that further areas be opened to like fishing, which, however, the department could not see its way to grant. I am of the opinion that sufficient areas are now open to meet the demands of all who desire to carry on winter fishing. The present areas are available to all with but short distances to travel and are located close to shipping facilities. Lesser Slave lake is the best producing lake in Alberta taking it from year to year, while fished as close to the line of safety as is considered wise, there is never any danger of depletion and if fishing in these waters is continued on the same basis as at present, and under the same regulations, there will be an unfailing supply of marketable fish of the first class for years to come.

The Buffalo lake fisheries have not been fished so heavily this year, the cost of getting out the catch is a drawback to these fisheries.

In southern Alberta there is an increased interest shown in the protection of the streams containing sporting fish, the closure of a number of the streams in past years is now showing its effect, many of the streams which two or three years ago were considered depleted now being well stocked. The two southern districts have been thoroughly patrolled during the past year, and it is pleasing to know that at last people are beginning to realize the value of these streams and to co-operate with our officers in every way to afford them protection. Well meaning persons demand the employment of fishery guardians wherever they think they are needed, losing sight of the fact that it would be an impossibility to have special guardians on each and every stream owing to the expense incurred. There can be no doubt however that the protection afforded these streams during the past year has been good in every way. That there have been many less violations the past year, taken with the fact that there was a large increase in the number of angling permits issued, will go to prove that the fact that these streams are receiving protection is recognized by the general public.

In the province of Saskatchewan while the total catch shows a decrease from last year, the value is greater, owing to the higher prices obtained for the fish. Open weather in the month of December had its effect in decreasing the



## SESSIONAL PAPER No. 29

catch considerably. No changes of importance have taken place in connection with the fisheries of this province during the year; they are in a healthy condition and are now back to normal, after three or four years of unsettled condition caused by bad markets. Every, and sufficient protection is being afforded the fisheries of Saskatchewan under the administration of the present staff.

The province of Manitoba shows a considerable decrease in catch during the past year. Here again the open winter at the start of the season had a great effect. The summer whitefishing in Lake Winnipeg was not successful, being very disappointing to the fishermen, the catch amounted to 24,476 cwts. as against 29,660 cwts. last year. The decrease cannot be put down to depletion, but rather to natural causes. There were long and continued storms during nearly the whole of the fishing season, when the fishermen could get on the grounds they could not find the fish; apparently the fish had sought new feeding grounds, and when they did come back to the usual grounds it was only in small numbers and late in the season. The water in lake Winnipeg was from two to four feet higher than for many years past, and this may have had something to do with the movements of the fish, inquiries show that this condition has obtained at different times in the past. On the other hand pickerel have not been so plentiful in these waters for many years past. An extension of the whitefish season was requested but it was not considered desirable to grant it.

The restrictions against fishing in Sturgeon bay, which has hitherto been a reserve for hatchery purposes, was taken off, owing to its being thought that the coarsefish were increasing to an extent that threatened the whitefish supply. Operations here commenced in December and up to the end of that month would not indicate that the coarsefish were as plentiful as had been thought. The catch being reported very light. The opening of these waters should to some extent relieve the pressure on lake St. Martin, which in my opinion should be closed to all commercial fishing operations for a period of not less than three years, in order to allow it to become stocked again. There can be no doubt of this lake being depleted, the fisheries have been going back for the past two or three years, this matter is now being investigated and a report with such recommendations as may appear necessary will be made.

Winter fishing at lake Winnipegosis was below the average of last year, though the summer fishing was good. I have at different times received complaints that the use of small meshed nets in certain parts of this lake was prevalent, a thorough investigation tends to show that these reports are much exaggerated and that there are no good grounds for them. In one area, in which it was stated that there were dozens of these small meshed nets was visited by an overseer from another district. He examined a large number of the nets found set in different parts of the area and found none at all of illegal mesh. This is getting a long way towards getting proper observance of the regulations by the fishermen, and I think that I may say that they are beginning to realize that it is as much to their own interests to use legal nets as anything can be. In places where we have had nothing but opposition in enforcing the regulations in regard to the use of legal meshed nets it is found that those who were most opposed are now willing to help our officers, and make no objection to stating that the department did them the best turn possible when it insisted that the use of nets of illegal mesh be put an end to.

The catch from Lake Manitoba during January and February, 1922, was shipped green, commanding a high market price on the United States market. The winter fishing this year from November 15 to December 31 was somewhat disappointing, owing to the late forming of the ice, and after that another breakup, so that it was rather late before fishing operations got under way, when the catch was not as good as expected.



Indications are that the fishery business in the provinces comprising the Central Fisheries Division has got back to a normal basis with a steady demand for the fish, and with good prices. Inquiries made show that the stocks of frozen fish on hand are sufficient to take care of the trade until the summer fishing commences, and that practically none of this frozen stock will have to be held in storage.

Observance of the fishery regulations has been enforced by the several fishery officers with firmness, but at the same time with a view to imposing as little hardship on the fishermen as possible. Taking into consideration the extent of territory covered by this division, it may be said that generally the regulations are well observed. There are one or two points which are exceptions, but they are gradually being brought into line.

There appears to be a greatly increased tendency towards asking for extensions of the fishing season. In many cases of this nature there is no reasonable ground for such a request, and I think that the action is not started by the fishermen themselves, but by those who are either interested in handling the catch, or to whom the fishermen may be indebted, and who hope by getting an extended season to clear off some of the liabilities.

I am pleased to report that the officers of this division have performed their several duties in a satisfactory manner.

REPORT OF CHIEF INSPECTOR, MAJOR J. A. MOTHERWELL,  
WESTERN FISHERIES DIVISION (BRITISH COLUMBIA)  
FOR 1922

SALMON

The total pack of all varieties of salmon in the province of British Columbia during the year amounted to 1,290,326 cases, as compared with 603,548 cases in the year previous and 1,616,127 cases in the year 1918. In only four years since 1894 has this total pack been exceeded in the province. By referring to statement No. 1 it will be observed that the total pack of sockeye, the most valuable variety, amounted to 299,614 cases against 163,914 in 1921 and 276,459 cases in 1918. The pack of this variety on the Fraser river exceeded that of the previous year by 12,844 cases and the brood year four years previous by 31,895 cases.

The quantity of sockeye taken by the Americans on Puget sound from the run as it was passing through American waters on its way to the spawning grounds of the Fraser river amounted to 48,566 cases, which, including the pack on the Fraser river, resulted in a toll from the Fraser river run of 87,310 cases as against 67,572 cases in 1918. The fishermen of Puget sound usually account for approximately 75% of the pack of sockeye taken from the run heading for the Fraser river and the Canadian fishermen have to be satisfied with the remaining percentage although the salmon are hatched in Canadian waters and the Canadian Government has spent in fish cultural operations large sums of money each year for the purpose of keeping up the run. During the year 1922 the catch of the Canadians equalled that of the Americans but this was due to the unusually small amount of fishing equipment operated in Puget Sound compared with other years.

This year's pack of sockeye on the Fraser was the largest since the year 1917 when 123,614 cases were put up but even this amount is infinitesimal in comparison with the pack of previous years especially the fourth or "big" year when as many as 990,313 cases were canned in one year, in 1901, and in an off year following the previous "big" year as many as 293,477 cases were packed.



## SESSIONAL PAPER No. 29

On the Naas river the pack of sockeye amounted to 31,277 cases which is the largest since 1916 and is a good average pack of this variety for the locality. These satisfactory figures were rather unexpected after the practical failure the year previous and the gradual decline in the catch during the past few years.

In the Skeena the pack of sockeye was 97,674 cases, as against 40,018 cases in 1921. Like the Naas, the 1922 run is made up largely of four and five year fish and the season was as good as could be expected. At this point the natural conditions in the way of tides, river current, bars, weather, and snags, go a long way towards protecting the runs of salmon and it is not anticipated that there will be any appreciable depletion in the future so long as present conditions do not materially alter.

The pack of sockeye at Rivers inlet is shown as 60,700 but 7,000 cases of these were brought from Smiths inlet which leaves a net pack of 53,700 cases at Rivers inlet. This is somewhat below the average especially in view of the fact that there were 1,012 gill-net licenses issued for the district. However, as in the case of the Skeena river a very satisfactory proportion of the run passed through to the spawning grounds.

The catch at Smiths inlet amounted to 14,227 cases taking into account the 7,000 cases packed at Rivers inlet and 712 cases packed at Shushartie. The result at this point can be regarded as extremely satisfactory and the spawning areas were well seeded.

It will be observed from statement No. 1 that a much larger pack of pinks and chums was put up during 1922 than in the previous year. This is partly accounted for by the fact that it was the big pink year on Queen Charlotte islands where this variety is of such a high quality. In 1921 owing to the market being glutted with these varieties of fish there was practically no sale for them but the following year the old stocks having been disposed of the way was open for a larger pack and these, particularly the chums, have found a ready sale. Unfortunately the market has never been good for canned springs and cahoes and although the runs of these varieties, especially the latter, have been good, there has been no incentive to place them in cans.

Until very recently, owing to the good price obtainable for the sockeye variety, these were looked to by the packers to carry a very large proportion of the expense of canning all varieties but due to a very large extent to the keen competition from the Siberian salmon on the English market there is not now as large a profit from the sockeye pack in British Columbia. In fact there is difficulty in moving those put up during the season 1922 at a price which will realize any profit at all. It is becoming more and more apparent that the industry must count no longer on making considerable profits on the sockeye variety but must look to pinks and chums very largely for their returns in the future. Undoubtedly the principle of packing considerable quantities of the cheaper grades of salmon which can be sold readily at a small margin of profit instead of giving so much attention to the packing of the more expensive variety in which there is at present little profit and which cannot be as easily disposed of, is economically sound.

With the price of sockeye on the Fraser river for instance averaging 80 cents a fish and an average of twelve fish being required to fill a case, it is difficult to see how any profit at all can be made by canners when, added to the initial cost of \$9.60 a case for the raw material, is the actual cost of packing, the insurance, overhead and other expenses necessary before the finished product is placed on the market. In the north the prices paid to the fishermen during the past few years have been between 30 and 45 cents, which are greatly below the prices paid on the Fraser, but on the other hand the cost of packing in the north is greater than in the south owing to the cost of transportation of supplies,



higher wages, and the necessity for taking employees north and returning them at the end of the season. The cost of shipping the finished product to the distributing centre is also an important factor to be taken into consideration.

HALIBUT

The catch of halibut for the year totalled 260,765 cwts., the Canadian boats accounting for 87,445 cwts., and the American boats 173,320 cwts. Owing to the Fordney-McCumber tariff which came into effect in the fall and which provides for a 2 cent a pound duty on fresh or frozen fish coming into the States when caught otherwise than in American bottoms, Canadian fishermen are obliged to accept 2 cents a pound less than their American competitors. The halibut business has been retained, however, at the Canadian ports of Prince Rupert and Vancouver and the business provided for the Canadian railways has been very considerable especially from Prince Rupert from which point the largest quantity of halibut is shipped in bond to the United States over the Canadian National Railway system.

The proposed close season for halibut fishing which has been demanded strenuously by all those interested on both sides of the line bids fair to become a fact at last and should result in infinite benefit to the industry.

The following is a statement of the quantity of halibut landed in British Columbia during the calendar year 1922:—

	Cwts.
Prince Rupert.....	251,605
Vancouver.....	9,160
Total.....	260,765

Halibut landings in British Columbia, 1913 to 1922:—

	Cwts.
1913.....	127,853
1914.....	156,106
1915.....	245,592
1916.....	257,794
1917.....	237,411
1918.....	166,805
1919.....	191,986
1920.....	220,890
1921.....	282,041
1922.....	260,765

HERRING

Apart from the herring used for halibut bait and dry salting there was no very considerable quantity utilized, although a certain amount was kippered. It is regrettable that there is no appreciable market for British Columbia Scotch-cured herring; the chief market, which is in the eastern States, is taken care of to a large extent by the products of the North sea which can be placed in New York at a considerably lower price than can those from British Columbia. Efforts are being made, however to build up a domestic trade in pails and these efforts are worthy of every encouragement.

It is interesting to note that during the past year approximately 40,000 cwts. of Scotch-cured herring were shipped from Alaska through Prince Rupert to markets in the eastern States. Due to the Fordney-McCumber tariff the Alaskan product has an advantage of one cent per pound over that from British Columbia on the American market.

There would appear to be every reason to believe that herring fishing can be prosecuted during the whole year off the coast of this Province and it is



SESSIONAL PAPER No. 29

hoped that conditions will shortly be such as to induce the operators to make the necessary experiments instead of, as in the past, waiting for this variety of fish to come into certain bays and inlets where they can be captured with the minimum of effort.

SUNDRY VARIETIES

The numerous other varieties of edible fish continue to be taken in fairly large quantities although the market is a limited one. Since the government has withdrawn the assistance by way of a rebate of express charges to points as far east as Manitoba the demand has been difficult to maintain.

WHALING

Owing to the recovery of the market for products of the whale, the stations at Naden Harbour, Queen Charlotte islands, and Kyuquot, west coast Vancouver island, which closed down during 1921, were again operated. From each of these two stations two boats engaged in the capture of whales for a period of five months and at Kyuquot additional boats were utilized for one month. As a result of these operations the following numbers of whales were captured:—

Species	Naden Harbour	Kyuquot	Total
Fin.....	57	37	94
Humpback.....	27	23	50
Sperm.....	7	31	38
Sulphur....	4	.....	4
Sci.....	.....	1	1
Totals....	95	92	187

FUR SEALS

Fishing for fur seals resulted in 930 being captured off the coast of this Province by the Indians. The price paid for the skins, however, was considerably less than during the previous season although certain of the Indians did very well during the time the herd was passing up the coast.

REDUCTION WORKS PLANTS

Five reduction works plants were operated during the year. For a time following the war conditions the market for products of such plants was most uninviting and it was with difficulty that the operators were able to carry on. However, the prices of oil and fish meals showed considerable strength later in the year and gave the owners of the plants considerable encouragement.

In the waters adjacent to the American boundary in the south, as a result of the protection afforded American fishermen by the Fordney-McCumber tariff, it has been possible for American buyers to come across from Puget sound and outbid the Canadian establishments by as much as \$3 per ton for the raw products in the way of grayfish captured on this side of the line. The Canadian industries are finding this extremely embarrassing and claim that under these conditions it is practically impossible for them to operate.

HAIR SEALS AND SEA LIONS

The immense damage to the fishermens' catch and nets owing to the depredations of hair seals and sea lions is common knowledge. In the Fraser



river, Smiths inlet, Rivers inlet, Skeena river, Naas river, and in fact in all salmon areas, these mammals will totally destroy or mutilate as high as 30 per cent of the number of salmon taken in gill-nets and in fact fishermen have recorded drifts when every salmon taken by the net has been totally or partially destroyed by hair seals before the net could be lifted and the catch secured.

Many suggestions have been made with a view to eliminating these mammals but to date no satisfactory method has been devised. In the winter of 1921-22 owing to strong representations made by the fishermen, cross lines were permitted to be operated in the Fraser river for the purpose of taking hair seals but between December 1 and May 31, although equipment was operated by 23 fishermen, only 13 hair seals were captured which proves conclusively that this method is not a satisfactory one.

In the early part of July the C.G.S. *Givenchy* was dispatched to the Pearl rocks, opposite Rivers and Smiths inlets for the purpose of demonstrating the efficacy of machine gun and rifle fire on the sea lions which gather in large numbers on the rookeries in the early summer months. It is estimated that with approximately 600 rounds of ammunition 220 sea lions were accounted for. Owing to the fact that the pups were fairly well grown the success of the operation was not as great as anticipated but it is the intention to next year proceed to the same point a month earlier when the pups are very young and when it will be a simple matter to destroy them by means of clubs, reserving the machine gun and rifle fire for the parents.

#### PATROL SERVICE

On the 1st of July, owing to the Fisheries Protection service being absorbed by the Fisheries Patrol Service, the steamers *Malaspina* and *Thiepval* became available and were utilized to a considerable extent assisting in the supervision of the salmon and other fisheries instead of being confined solely to the halibut fisheries and the three mile limit. With the addition of these two boats the patrol fleet consisted of three steam trawlers, one other steamboat and 21 gasoline boats belonging to the department. In addition 50 gasoline boats and 7 row boats were chartered from various parties, for periods ranging from one to six months, during the fishing season, making a total of 82 boats.

Experience has shown that instead of the small launches or boats built merely for speed and appearance on inside waters, something more after the style of a seine boat is necessary in such waters as Rivers inlet and for the purpose of taking the several inspectors over their districts. In this connection it is very gratifying to note that there is a prospect of the impractical and extremely expensive "Fispa" being disposed of and a boat more efficient and less costly of operation being provided in her stead. Undoubtedly as new boats are required of sufficient size as will permit, the gasoline and distillate engines should be discarded for those of the full Diesel or semi-Diesel variety. The saving in the cost of operation is enormous and their efficiency is as great, if not more so, than that of gasoline engines.

#### REGULATIONS

In January, following the non-success of the attempt to get together with the Washington State Fisheries Board with a view to the conservation of the Fraser river salmon runs, a separate attempt was made to obtain the co-operation of the State Board for the purpose of providing a weekly closed season of sixty hours for sockeye fishing on the Fraser river and Puget sound. The state



## SESSIONAL PAPER No. 29

board, however, felt that as it had advised the Washington State industry that no further measures would be taken during the year it would not be possible to enter into the suggested arrangement.

With a view to encouraging white and Canadian Indian subjects to enter the fishing industry in the province a reduction of 33 $\frac{1}{3}$  per cent was made this year in the number of salmon trolling licenses issued to other than resident white British subjects and Canadian Indians. As a result considerable difficulty was at first experienced in effectually enforcing such reduction and it became necessary to amend the regulations in such a manner as to provide for definite control of fishermen and boats leaving the shores of Canada to operate in extra-territorial waters.

The records of the catch of sockeye in district No. 2 up to 1921 showed conclusively that some additional measures were required in order that conservation might be properly provided for and six hours were consequently added to the weekly closed period in all sections of the district. Judging from the reports on the several spawning areas, the results well justified this curtailment of fishing operations.

Special attention was given to the protection of the salmon waiting at the mouths of streams for high water which would enable them to ascend to the spawning grounds. Owing to the great distances and areas to patrol this is a very difficult matter but it is believed that the regulations in this respect were reasonably well enforced. The reports received on the spawning areas would appear to confirm this conclusion. It will be appreciated that with a large percentage of the fishery guardians being seasonal employees only it is difficult to procure the services of experienced and competent men.

In certain portions of the northern district it was found that sufficiently good results were not being obtained from the patrol service and it is the intention to, when the time arrives for re-employment for the season 1923, arrange for a partial reorganization.

It is interesting to observe that during the year there were 173 prosecutions for violations of the fishery regulations.

## ANGLING

Each year more and more attention has to be given to angling in the province. As the country becomes more settled and is better known as a fisherman's paradise new demands are made on the department's officers for closer supervision of the sporting streams. Owing to the great extent of fishing area it is a very difficult matter even in the vicinity of the thickly populated districts for the several officers to keep as closely in touch with angling conditions as could be desired. It is hoped, however, that with the assistance of the numerous angling associations which are coming into existence all through the province, the fishermen can be educated from a standpoint of regulations and fish culture to such an extent as to reduce to a minimum the difficulties of the fishery officers.

In addition to the splendid supply of such excellent sporting fish as the steelhead, cutthroat and rainbow trout, and the spring salmon, native to British Columbia, the department has successfully introduced the Atlantic salmon and Eastern Brook trout into the province and is each season by means of fish cultural methods restocking depleted streams and lakes as well as providing supplies of sporting and food fish in waters where none has existed in the past.

## SCIENTIFIC INVESTIGATION

It has been contended that a large proportion of the catch of spring salmon off the west coast of Vancouver island by means of trolling is composed of immature fish and that much damage is being done to the supply by the inten-



sive operations being conducted. In order that the department might have full information on this point an officer was stationed on the west coast of the island during the trolling operations. He kept in close touch with the fishing camps and obtained abundant data in the way of measurements, scales, and other information which has been turned over to the Biological Board for examination and report. If it is found that an undue proportion of the catch is composed of immature fish the necessary action looking to conservation will be taken.

In order to determine the advisability or otherwise of steps being taken to eliminate trout and other predaceous fish from streams and lakes frequented by salmon, two officers of the Biological Board were stationed at Harrison lake from June 7 to September 8 for the purpose of conducting investigations and collecting data. As this and related work is of considerable magnitude more than one season will be required for the purpose of obtaining intelligent information on which safe conclusions can be based.

CLEARING OBSTRUCTIONS IN SALMON STREAMS

During the year the Engineering Branch was kept very busy in the work of clearing obstructions to the ascent of salmon in the numerous streams of the province. The principal streams receiving attention were as follows, together with the expenditure in connection with each:—

	\$	cts.
Wakwash river, Owekano lake.....	1,750	00
Markwell river, Owekano lake.....	1,550	00
Schumahawk river, Owekano lake.....	800	00
Yakoun river, Q.C.I.....	4,476	25
Ian river, Q.C.I.....	248	60
Silver creek, vicinity Hope.....	2,419	55
Salmon river, Kamloops.....	1,700	17
Fishermen's river, V.I.....	1,056	01
San Josef river, V.I.....	1,135	15
Bella Bella District:		
McLaughlin creek	}	1,365 23
Tinkey creek		
Kisimete creek		
Howyet creek		
Big Qualicum river.....	185	75
French creek.....	416	08
Kakweiken river, head of Thompson Sound.....	294	18
Embley Lagoon.....	168	69
Oyster river.....	113	92
Skutz Falls.....	260	00

Considerable work was also done at the Pemberton hatchery in the way of renewing fences and cribs which had been washed out owing to unusually heavy freshets in the Birkenhead river. The cost of this work was \$3,346.82.

Abundant evidence is available throughout the province to show the desirability of continuing the clearing of obstructions in such streams and many which for several years have been blocked entirely are now being used again extensively by spawning salmon.

During the year 1921, having in view the strictest economy possible, attention was given to sockeye streams only but it has been found absolutely necessary to give more attention to the other varieties of salmon for which the demand is increasing year by year. For this reason the work of clearing obstructions was extended to such points as Queen Charlotte Islands where it is particularly desirable owing to 1922 being the year of the big run of pinks.

*Hells gate, Fraser river.*—Opinions have been expressed recently to the effect that the work done by the department in the way of clearing obstructions to the ascent of salmon at Hells gate on the Fraser river was not efficiently performed and that as a result the salmon are not able to pass this point and ascend to the spawning grounds. Those most capable of judging the conditions are the



## SESSIONAL PAPER No. 29

department's own officer with headquarters at Hope and the assistant to the Commissioner of Fisheries at Victoria. These gentlemen have given Hells gate a very great deal of attention since the slide and as a result of their observations state most emphatically that the clearing work was well done and that the bed of the river was certainly restored to the condition obtaining prior to the slide and when the passage was made by such immense quantities of parent salmon. At certain stages of the water even before the slide salmon have always had difficulty in passing this point but it is only a matter of waiting perhaps a few hours or possibly a day or two before the water conditions are suitable and all salmon are able to ascend.

## REVENUE

It has been suggested from time to time that the fees required of the fishing industry in British Columbia are not justified and in connection with the salmon fishing are largely the result of unusually profitable conditions during the war when prices were high and considerable profit was being made. Under present conditions, however, there is no doubt that most of the license fees charged are far too heavy and considerable relief to the industry would result if fees were more of a nominal nature. In view of the huge benefits which result to the country generally from the operations of those engaged in the industry by way of the employment of thousands of individuals, the distributing of millions of dollars each season to fishermen and merchants, and in numerous government taxes, there would seem to be little justification for the continued large license fees.

## MEETINGS WITH INSPECTORS AND OVERSEERS

The usual annual spring meeting with the inspectors of the three districts, together with their overseers, was held in Vancouver and the results obtained were most satisfactory. Each season the benefit of such meetings becomes more apparent and the efficiency of the service is increased.

## BRITISH COLUMBIA FISHERIES COMMISSION

The Fisheries Commission, composed of six members of the Federal House Committee on Marine and Fisheries, spent several weeks on the coast during the late summer investigating the fisheries of the province and on its return to Ottawa submitted to the department an interim report containing certain recommendations which it was considered necessary to make pending the submission of the final report, which it is expected will contain many recommendations which will result in permanent benefit to the fishing industry.

## CONFERENCE WITH ALASKA AUTHORITIES

A considerable portion of the run of salmon heading for the Naas river passes through Alaskan waters and is intercepted by the American traps and other fishing gear. Between the equipment used on the Alaskan side and that used on the Canadian side the result has been over fishing to such an extent that the run of salmon to the Naas river has become to a large extent depleted. The conditions in this respect are very similar to those obtaining on the Fraser river where practically all the run of sockeye salmon in particular passes through American waters before reaching the Fraser.

In March a meeting was arranged with the Secretary of the Alaska Fisheries Commission in Vancouver for the purpose of discussing Naas river conditions with a view to joint regulations looking to the conservation of the runs to the Naas. On the secretary's arrival at Vancouver, however, he was



advised by his department in Washington, D.C., to the effect that according to the then existing law it would not be possible to enter into the necessary arrangement with the Canadian authorities. It is hoped, however, that in the near future further efforts will result in better success

#### INSPECTION OF SPAWNING AREAS

The usual examination of the salmon spawning beds was made by the fishery officers where practicable and the resultant reports received show that with few exceptions the several areas were plentifully supplied naturally with spawn.

In the Naas river district the supply of sockeye reaching the Meziaden lake showed a great improvement over the last few years, the run of sockeye at least equalling that of the year 1917. An inspection of the Bowser lake district was also made after many difficulties but from the information obtained it would appear that the lake is not particularly valuable from a standpoint of spawning sockeye.

In the Skeena river watershed conditions were found to be eminently satisfactory, the Babine lake and Lakelse lake spawning areas being abundantly seeded with sockeye ova. This also applies to the Kitsumkelum area.

In the Bella Coola and Kimsquit areas the reports show that the spawning grounds received an abundant supply of sockeye eggs. Considerable money has been spent in recent years in this vicinity in the way of clearing obstructions from streams and the result has certainly justified the expense.

In the Rivers inlet district it was found that a satisfactory quantity of spawning sockeye did not reach the streams at the head of Owekano lake but that the remainder of the spawning areas were splendidly seeded. Attention is being given, however, to the first-mentioned streams by means of fish cultural methods and an adequate supply of sockeye salmon eggs and fry is being planted at these points.

Reports from the Smiths inlet district show that satisfactory quantities of sockeye salmon ascended to the spawning areas in that vicinity. The quantities of spring salmon observed in this district is also worthy of note.

On the west coast of Vancouver island the number of parent sockeye salmon reaching the spawning areas at Kennedy lake was very satisfactory and the hatchery situated on the lake was filled to capacity with eggs of the sockeye variety. There was also a good run of sockeye to the Anderson lake and that hatchery was also filled to capacity.

A fairly good run also ascended the Sproat and Stamp rivers.

The reports received from the Fraser river watershed show that compared with recent years a very fair supply of parent sockeye salmon reached the spawning grounds together with an unusually large quantity of spring salmon which ascended in considerable numbers to the head waters of the Fraser and were observed in quantities particularly in the Nechako system and as far up as Tete juan Cache. A few hundred parent sockeye salmon were observed in the Nechako river system.

The Bowron lake and river system showed no improvement over last year when only a few sockeye were observed.

In the Quesnel district the conditions apparently were very similar to those of last year when a certain number of spawning sockeye were observed but the quantity is infinitesimal when compared with runs of previous years when millions were counted.

In the Chilco and Chilcotin districts the reports received would indicate that only a very few sockeye salmon were seen.



## SESSIONAL PAPER No. 29

The reports from the Stuart lake district show conditions this year to be very similar to last season. The Indians obtained in the vicinity of 1,500 parent sockeye but owing to there being a considerable amount of work available the fishing operations by the Indians did not assume the same proportions as in previous seasons and it is reasonable to assume that a fair supply compared to the last few years reached the spawning grounds. Undoubtedly the run of spring salmon to the Nechako and Stuart lake systems was the best for a number of years. It has been suggested that this is possibly due to there being considerably less fishing equipment operating in Puget sound during the time spring salmon were passing through on their way to the Fraser.

In the North Thompson river the run of sockeye is reported as being slightly in excess of the last few years. In the South Thompson a good run of sockeye passed up the river and which was reported to have exceeded the run of the previous eight years.

The Shuswap district particularly in the vicinity of Adams river received a greater quantity of sockeye spawn than for the last three seasons.

In the Bridge river district there was again a very splendid run of sockeye. The hatchery was filled to capacity and large quantities of parent fish were permitted to spawn naturally.

In the Harrison lake district the supply of spawning sockeye at Morris creek was considerably in excess of the previous few seasons and the whole run to the Harrison district shows a decided improvement.

The Cultus lake and Chilliwack lake system was plentifully supplied with sockeye, coho, and steelhead eggs.

The run of sockeye to the Pitt lake district was estimated to be at least 25 per cent greater than the runs of recent years. A plentiful supply of spring and coho salmon was also observed.

The spawning areas in the vicinity of Burrard inlet and Howe sound were well supplied with chum salmon but this year is the off one for the pink variety.

## DEPARTMENT OFFICIALS

It is with much pleasure that I refer to the visit of the Superintendent of Fish Culture together with the Fisheries Engineer for the purpose of a thorough inspection of the hatchery service in the province. It is only by such visits made frequently that the proper touch can be maintained and mutual difficulties appreciated.

## STAFF

All members of the staff have had an exceedingly busy year and frequently it is found necessary to remain after hours and for several members of the staff to spend many evenings and Saturday afternoons in the office in order that the work may be kept up. Temporary assistance, which can be obtained from time to time, is mostly unsatisfactory as a considerable portion of the period of employment is consumed in learning the work and as such positions are only temporary there is not the same interest shown as would be the case with a permanent member of the staff.

## OBITUARY

It is with very great regret that I refer to the deaths of Mr. Robert Gold, a member of the staff of the Inspector of District No. 3, at Nanaimo, Mr. D. F. M. Perkins, Fishery Overseer for the Fort George District, Mr. Ernest Parker, deckhand on the *F. P. L. Merrysca*, who was drowned on July 6, 1922, and Mr. John Widsten, Fishery Overseer at Bella Coola, who was killed by a falling tree on December 12, 1922.



STATEMENT OF SALMON PACK—BRITISH COLUMBIA

WHOLE PROVINCE—1895 TO 1922

STATEMENT No. 1

Year	Number of canneries operated	Sockeye	Red Spring	Pink Spring	White Spring	Bluebacks	Steelheads	Cohoos	Pinks	Chums	Totals
1895	36	Particulars of varieties not available									566,395
1896	47	"	"	"							601,570
1897	54	"	"	"							1,015,477
1898	51	"	"	"							481,161
1899	59	"	"	"							732,437
1900	64	"	"	"							585,413
1901	73	"	"	"							1,236,156
1902	66	531,436	Springs and Fall: 94,546								625,982
1903	59	Particulars of varieties not available									473,674
1904	51	323,226	(35,421	Red & Wh.	Springs) Fall:	107,247					465,894
1905	67	1,080,673	(28,359	Red & Wh.	Springs)				13,970		1,167,460
1906	64	459,679	31,261		1,083				(68,305	Pinks and Chums)	629,460
1907	58	314,074	23,159		2,939		683	87,900	(118,704	"	547,459
1908	52	355,023	25,433		2,731		1,137	81,917	(76,448	"	542,689
1909	72	840,441	18,218		799			61,918	(46,544	"	967,920
1910	58	565,915	19,313		9,476		140	74,382	34,613	58,362	762,201
1911	59	383,509	38,751		9,705			119,802	305,247	91,951	948,965
1912	57	444,762	62,345		18,092			165,309	247,743	58,325	996,576
1913	78	972,178	37,433		3,616			69,822	192,887	77,965	1,353,901
1914	63	536,696	32,908		16,420			120,201	220,340	184,474	1,111,039
1915	63	476,042	51,734		6,370			146,956	367,352	82,000	1,133,381
1916	72	214,789	51,231		15,495	3,096		183,623	280,644	240,201	995,065
1917	94	339,848	48,630		27,646	(11,740		157,589	496,759	475,273	1,557,485
1918	88	276,459	65,535	(41,819	Pk. & Wh.)	(15,916	B.B. & S.H.)	191,068	527,745	497,615	1,616,157
1919	82	369,445	73,179	9,077	18,295	24,323	4,493	175,670	346,639	372,035	1,393,156
1920	65	351,405	95,983	8,441	13,877	8,061	2,395	101,972	520,856	84,626	1,187,616
1921	56	163,914	36,725	6,061	6,966	7,060	1,220	117,288	192,906	71,408	603,548
1922	64	299,614	21,163	11,913	6,520	6,431	1,657	102,845	581,979	258,204	1,290,326



SESSIONAL PAPER No. 29

PACK OF CANNED SALMON ON THE FRASER RIVER, 1895 TO 1922

STATEMENT No. 2

Year	Number of canneries operated	Number of gill-nets operated	Sockeye	Red Spring	Pink Spring	White Spring	Bluebacks	Steelheads	Cohoos	Pinks	Chums	Totals
1895.....	21	.....	400,368	.....	.....	.....	.....	.....	.....	.....	.....	400,368
1896.....	29	.....	356,984	.....	.....	.....	.....	.....	.....	.....	.....	356,984
1897.....	35	.....	860,459	.....	.....	.....	.....	.....	.....	.....	.....	860,459
1898.....	35	.....	256,101	.....	.....	.....	.....	.....	.....	.....	.....	256,101
1899.....	41	.....	510,383	.....	.....	.....	.....	.....	.....	.....	.....	510,383
1900.....	48	.....	316,522	.....	.....	.....	.....	.....	.....	.....	.....	316,522
1901.....	49	.....	990,313	.....	.....	.....	.....	.....	.....	.....	.....	990,313
1902.....	42	3,832	293,477	.....	.....	33,618	.....	.....	.....	.....	.....	327,095
1903.....	35	2,685	204,809	.....	.....	Red. & Wh. Spring)	.....	.....	25,728	4,504	.....	237,125
1904.....	23	3,101	72,688	.....	.....	Red. & Wh. Spring)	.....	.....	45,667	1,066	.....	128,903
1905.....	38	2,224	837,489	.....	.....	Red. & Wh. Spring)	.....	.....	30,836	3,304	.....	877,136
1906.....	24	2,770	183,007	.....	.....	.....	.....	.....	34,413	(15,543	Pk. and	240,486
.....	.....	1,746	.....	6,503	.....	1,020	.....	.....	.....	.....	(chums)	.....
1907.....	18	1,726	59,815	3,448	.....	557	.....	.....	35,766	(63,530	.....	163,116
1908.....	16	1,374	63,126	1,427	.....	18	.....	.....	24,198	( 415	.....	89,184
1909.....	38	2,688	542,248	1,428	.....	.....	.....	.....	21,540	( 1,987	.....	567,203
1910.....	21	1,577	133,045	1,018	.....	.....	.....	.....	27,855	.....	52,177	223,148
1911.....	15	1,396	58,487	7,028	.....	8,925	.....	.....	39,740	142,101	47,237	301,344
1912.....	15	1,430	108,784	14,655	.....	6,751	.....	.....	38,574	.....	12,961	173,921
1913.....	35	2,560	684,596	3,573	.....	8,373	.....	.....	11,648	9,973	22,220	732,059
1914.....	20	2,656	185,483	9,485	.....	49	.....	.....	38,639	6,057	74,726	328,390
1915.....	22	2,616	89,040	15,388	.....	14,000	.....	.....	34,114	128,555	18,539	289,119
1916.....	21	2,240	27,394	11,096	.....	3,532	.....	.....	24,580	840	30,184	106,440
1917.....	29	2,626	123,614	10,197	.....	9,217	.....	31	25,895	134,442	59,973	377,988
1918.....	18	1,582	16,849	15,192	.....	18,916	.....	33	40,111	18,388	86,215	206,003
1919.....	14	1,337	29,628	14,519	.....	24,274	.....	7	39,253	39,363	15,718	158,718
1920.....	11	1,288	44,598	19,961	.....	3,592	.....	635	22,934	12,839	23,884	132,860
1921.....	13	1,437	35,900	11,360	.....	2,204	.....	328	29,978	8,178	11,223	103,917
1922.....	10	1,296	48,744	10,561	.....	5,480	.....	34	23,587	29,578	17,895	137,482
.....	.....	.....	.....	.....	.....	3,867	.....	8	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	5	.....	.....	.....	.....



PACK OF CANNED SALMON ON PUGET SOUND FROM 1887 BY SPECIES

STATEMENT No. 3

Year	Number of canneries operated	Spring	Sockeye	Medium Red	Chum	Pink	Steelhead	Total
1887								22,000
1888	4							21,975
1889	2	240		7,480	1,145	2,890		11,674
1890	1	1,000		3,000	4,000			8,000
1891	2	382	5,538	5,869	3,093	5,647		20,529
1892	2	86	2,954	7,206	16,180			26,426
1893	3	1,200	47,852	11,812	11,380	17,530		89,331
1894	3		41,781	22,418	22,152	9,049		95,400
1895	7	1,542	65,143	50,865	38,785	23,633		179,968
1896	11	13,495	72,979	82,640	26,550			195,664
1897	12	9,500	312,048	91,900	23,310	57,268		494,026
1898	18	11,200	252,000	98,600	38,400			400,200
1899	19	24,364	499,646	111,387	31,481	252,733		919,611
1900	19	22,350	229,800	128,200	89,100			469,450
1901								1,380,590
1902	21	30,049	372,301	85,817	93,492			581,659
1903	22	14,500	167,211	103,450	12,001	181,236		478,488
1904	13	14,441	109,264	118,127	49,656			291,488
1905	24	1,804	825,453	79,335	41,057	70,992		1,018,641
1906	16	8,139	178,748	94,497	149,218			430,602
1907	14	1,814	93,122	119,472	50,249			698,080
1908	22	95,210	170,951	128,922	47,607	433,423		448,765
1909	11	13,019	1,097,904	143,133	53,688	370,993		1,632,949
1910	24	10,064	248,014	162,755	146,942	108		567,883
1911	15	21,823	127,761	256,124	104,321	1,046,992		1,557,029
1912	20	20,252	184,680	149,727	60,760	700		416,125
1913	22	1,234	1,673,039	61,019	56,225	791,886		2,583,463
1914	31	26,041	335,230	151,893	278,801	892		792,860
1915	41	28,466	64,548	180,783	411,724	583,649		1,269,206
1916	32	37,030	84,637	155,832	427,878	1,887		707,278
1917	45	57,543	411,538	114,276	216,285	1,124,884		1,921,554
1918	32	63,366	50,723	235,860	267,538	6,605	106	624,198
1919	35	68,542	64,546	210,883	525,541	421,215	5,076	1,295,626
1920	11	25,846	62,654	24,502	48,849	4,669		166,520
1921	23	25,567	102,967	89,412	30,831	404,713		653,490
1922	16	20,615	48,566	111,771	65,552	2,225		248,720



## SESSIONAL PAPER No. 29

STATEMENT No. 4

## PACK OF CANNED SALMON ON NAAS RIVER, 1895 TO 1922

Year	Number of canneries operated	Number of gill-nets operated	Sockeye	Red Spring	White Spring	Bluebacks	Steelheads	Chinooks	Pinks	Chums	Totals
1895.....			Particulars of varieties not available								19,550
1896.....			"								14,649
1897.....			"								20,847
1898.....			"								18,953
1899.....			"								19,443
1900.....			"								18,238
1901.....			"								14,790
1902.....	2		20,953 (Other varieties: Particulars of varieties not available			2,365					23,318
1903.....			15,000	2,357	Red and White)				31		12,100
1904.....											19,085
1905.....	3		24,462	3,340					1,840		32,725
1906.....	3		22,166	858	63				3,450	Pinks and Chums)	32,534
1907.....	3		17,813	1,288			681		5,957		31,832
1908.....	3		27,584	3,263			1,101		6,612		46,908
1909.....	3		28,246	2,280	57				3,589		40,990
1910.....	4	240	30,810	1,228	11		140		895	351	39,720
1911.....	3	240	37,327	3,434	325		100		11,467	5,189	65,684
1912.....	3	265	36,037	5,710	1,226				12,476	3,245	71,162
1913.....	3	265	23,574	2,999	152				20,539	2,987	53,123
1914.....	4	265	31,327	2,660	725				25,333	25,369	91,810
1915.....	4	265	39,349	3,053	648				34,879	11,076	101,289
1916.....	4	265	31,411	3,061	784		148		59,593	11,200	126,686
1917.....	4	265	22,188	3,170	1,326		1,125		44,568	24,938	119,495
1918.....	6	265	21,816	2,332	1,820		1,305		59,206	40,368	143,708
1919.....	5	300	28,259	2,408	1,166		789		29,949	24,041	97,512
1920.....	5	342	16,740	3,584	1,271		560		43,151	12,145	81,153
1921.....	5	338	9,364	1,431	657		413		29,488	2,176	51,765
1922.....	5	304	31,277	1,466	596	42	193		75,687	11,277	124,071



PACK OF CANNED SALMON, SKEENA RIVER, 1895 TO 1922

STATEMENT No. 5.

Year	No. of Cys.	No. of G.N.	Sockeye	Red Spring	Pink Spring	White Spring	Steel-head	Coho	Pink	Chum	Total
1895.	7		Particulars of varieties not available								67,797
1896.	8		"	"	"	"					100,140
1897.	8		"	"	"	"					65,905
1898.	6		"	"	"	"					81,234
1899.	7		"	"	"	"					108,026
1900.	10		"	"	"	"					128,529
1901.	11		"	"	"	"					126,092
1902.	10		"	"	"	"					154,875
1903.	10		"	"	"	"					98,669
1904.	11		93,404	(20,621	Red & White Spr.)			10,315	30,529		154,869
1905.	12		84,717	(14,598	"			7,247	7,523		114,085
1906.	14		86,394	20,138	"			16,897	(38,991	Pink and Chum)	162,420
1907.	13		108,413	10,378				15,247	(25,217	"	159,255
1908.	13		139,846	13,374		468		10,075	(45,404	"	209,177
1909.	12		87,901	11,727		742		12,249	(28,120	"	140,739
1910.	12		187,246	9,546		239		11,531	13,473		222,035
1911.	12	850	131,066	15,514		2,428		23,376	81,956	70	254,410
1912.	12	850	92,498	19,332		4,501		39,835	97,588	504	254,258
1913.	13	850	52,927	23,250		3,186		18,647	66,045		164,055
1914.	13	850	130,166	11,529		211		16,378	71,021	8,329	237,634
1915.	13	962	116,553	15,069		204	1,798	32,190	107,578	5,769	279,161
1916.	14	868	60,923	18,372		2,561	3,743	47,409	73,029	17,121	223,158
1917.	15	788x	65,760	13,586		2,699	1,883	38,456	148,319	21,516	292,219
1918.	15	889x	123,322	16,013		6,828	4,994	38,759	161,727	22,573	374,216
1919.	14	1,153	184,945	19,661		2,656	2,672	36,559	117,303	31,457	398,877
1920.	15	954	90,869	37,403	3,624	3,123	1,218	18,068	177,679	3,834	334,392
1921.	13	1,109	40,018	18,599	2,198	445	498	45,033	124,457	1,993	234,765
1922.	15	1,091	97,674	7,576	2,722	2,654	1,050	14,067	195,580	17,343	335,944

x Approx.  
Note: Figures of pack for 1922 approximately.



SESSIONAL PAPER No. 29

PACK OF CANNED SALMON AT RIVERS INLET 1896 TO 1922

STATEMENT No. 6

Year	No. of canneries operated	No. of Gill-nets operated	Sockeye	Red Spring	Pink Spring	White Spring	Steel heads	C'ohoes	Pinks	C'hums	Totals
1896.	4		Particulars of varieties	Particulars of varieties	varieties not available	"					107,468
1897.	6		"	"	"	"					40,207
1898.	6		"	"	"	"					104,711
1899.	6		"	"	"	"					71,079
1900.	6		"	"	"	"					75,413
1901.	6		"	"	"	"					66,840
1902.	5		68,819	Other varieties	varieties	1,729					70,298
1903.	4		Particulars	of varieties	not available.						69,390
1904.	4		93,862	(11	red and wh. Spr.)			358	61		94,292
1905.	5		82,771	(351	"						83,122
1906.	7		122,631	181				66			122,878
1907.	7		87,874	450				5,040	(700	C'hums and Pinks)	
1908.	7		64,652	454				9,505	(479		94,064
1909.	7		89,027	587				1,400			75,090
1910.	7		126,921	383				2,075	19		91,014
1911.	7	700	88,763	317				6,287	5,411		129,398
1912.	7	700	112,884	681		468		11,010	8,809	288	101,066
1913.	7	700	61,745	594				3,660	2,097	3,845	137,697
1914.	7	700	89,890	566				7,789	5,784		68,096
1915.	7	700	130,350	1,022				7,115	2,964	5,023	109,052
1916.	7	700	44,936	1,033		389		15,314	2,964	5,387	146,838
1917.	8	700	61,195	715		102		9,124	3,567	20,144	85,383
1918.	8	700	53,401	957	85	377		12,074	8,065	16,101	95,302
1919.	9	769	56,258	967	234	241	2	9,038	29,542	6,729	103,155
1920.	9	871	121,254	1,522	81	190		2,908	6,538	7,089	80,367
1921.	9	1,000	46,300	364				4,718	25,647	1,226	152,828
1922.	9	1,012	60,700	216	69	38	97	1,120	5,305	173	56,957
							82 B.B.		24,292	311	86,828



STATEMENT OF SALMON PACK AT SMITHS INLET, DISTRICT No. 2, FROM 1912 TO 1922

STATEMENT No. 7

Year	No. of canneries operated	No. of Gill-nets operated	Sockeye	Red Spring	White Spring	Blue- backs	Steel heads	Cohoe	Pinks	Chums	Totals
1912.....	1	.....	16,333	(771 Red and White)	.....	.....	.....	85	2,914	998	21,101
1913.....	1	.....	17,000	995	.....	.....	.....	48	2,190	2,015	22,818
1914.....	No records	available	.....	.....	.....	.....	.....	.....	.....	.....	.....
1915.....	1	.....	32,301	Other varieties	.....	292	.....	.....	.....	.....	32,593
1916.....	1	.....	13,256	Other varieties	.....	13,990	.....	.....	.....	.....	27,246
1917.....	2	115	14,131	Other varieties	.....	4,325	.....	.....	.....	.....	18,456
1918.....	2	115	13,441	Other varieties	.....	10,736	.....	.....	.....	.....	24,177
1919.....	2	147	15,814	Other varieties	.....	13,053	.....	.....	.....	.....	28,867
1920.....	1	173	11,991	(15 Red & Wh.)	.....	.....	.....	14	542	.....	12,562
1921.....	1	215	3,429	42	44	.....	.....	66	31	.....	3,612
1922.....	1	179	6,515	.....	.....	.....	.....	25	19	.....	6,559



## APPENDIX No. 2

## FINANCIAL STATEMENT, FISHERIES, 1922-23

Vote No.	Service	Appropriation	Expenditure
		\$ cts.	\$ cts.
252	Salaries and disbursements of fishery officers, Fisheries Patrol Service.....	683,000 00	612,861 57
253	Building fishways, etc.....	40,000 00	16,115 99
254	Legal and incidental expenses.....	4,000 00	1,475 97
255	Conservation and development of deep-sea fisheries.....	25,000 00	21,761 65
256	Fisheries Intelligence Bureau.....	2,000 00	1,235 73
257	Inspection of canned and pickled fish.....	21,000 00	20,997 05
258	Fish culture.....	370,000 00	332,329 98
259	Scientific investigations into fisheries.....	15,000 00	3,649 94
260	Marine Biological Board.....	42,000 00	42,000 00
536	Compensations <i>re</i> C.G.S. <i>Givenchy</i> .....	1,198 80	1,192 80
537	International fishing schooner race.....	5,000 00	5,000 00
216	Fisheries Protection Service.....	345,500 00	196,639 25
		1,553,698 80	1,255,259 93
	Civil Government salaries.....	96,100 00	87,296 48
	Contingencies.....	25,000 00	23,579 51
	Fishing bounty.....	160,000 00	157,172 55
		1,834,798 80	1,523,308 47
	Gratuities.....		640 00
	Superannuation No. 4, Retirement Act, 1920.....		1,050 00
563	Cost of Living Bonus.....		58,327 38
577	Reclassification arrears.....		267 05
	Total net expenditure, 1922-23.....		1,583,592 90

## REVENUE COLLECTED, 1922-23

Class	Licenses	Revenue tax	Fines	Sales	Total collected	Amounts refunded	Net revenue
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Licenses, etc.—							
Nova Scotia.....	11,134 56		1,228 00	361 46	12,724 02	12 00	12,712 02
Prince Edward Island.....	4,318 75		1,255 00	237 13	5,810 88	1 00	5,809 88
New Brunswick.....	15,893 32		1,934 50	1,351 99	19,179 81		19,179 81
Ontario.....			5 00	2,014 60	2,019 60		2,019 60
Manitoba.....	11,628 50		176 50	305 49	12,110 49	37 50	12,072 99
Alberta.....	11,817 25		100 00	35 55	11,952 80	5 00	11,947 80
Saskatchewan.....	2,418 00		284 50	202 15	2,904 65		2,904 65
British Columbia....	149,654 83	63,355 97	7,221 00	3,916 27	224,148 07	491 50	223,656 57
Yukon.....	320 00				320 00		320 00
Totals.....	207,185 21	63,355 97	12,204 50	8,424 64	291,170 32	547 00	290,623 32
Casual.....							5,183 15
Fish culture.....							2,972 98
Modus vivendi licenses							3,697 50
Fines and forfeitures...							1 00
Revenue under Pelagic Sealing Treaty.....							59,876 83
Premiums on exchange.							467 12
Total net revenue collected, 1922-23.....							362,821 90



DETAILED STATEMENT OF SALARIES AND DISBURSEMENTS EXPENDITURE, 1922-23

Provinces	Inspector's Overseers and Ward's		Allowances			Gasoline and Oil	Special Guardians		Sundry	Total
	Salaries	Disbs.	Auto	Boat	Horse		Wages	Expenses		
									\$ cts.	\$ cts.
Eastern Division— General account.... Nova Scotia No. 1..... “ No. 2..... “ No. 3.....	12,585 00	1,995 13	.....	.....	.....	.....	.....	.....	217 82	14,797 95
	11,845 00	3,167 80	3,034 39	581 25	74 20	224 05	13,522 37	83 48	243 21	32,775 75
	15,300 00	2,863 91	3,566 67	218 75	625 00	169 08	4,794 63	430 63	205 29	28,173 96
	17,266 93	4,876 90	3,600 00	.....	900 00	.....	3,342 51	30 00	189 49	30,205 83
New Brunswick No. 1..... “ No. 2..... “ No. 3.....	8,655 00	1,949 65	1,543 00	300 00	267 74	229 29	2,647 00	10 00	105 70	15,707 38
	15,644 14	3,406 51	3,817 19	615 35	346 43	456 61	9,067 27	.....	929 11	31,282 61
Prince Ed. Isd. No. 1... “ No. 2.....	6,308 00	1,318 76	333 33	75 00	350 00	89 23	6,301 52	3 50	25 97	14,805 31
	7,104 11	1,875 54	1,451 61	37 50	.....	.....	1,251 00	186 15	734 36	12,640 27
Quebec.....	2,130 00	888 68	.....	150 00	.....	346 85	.....	.....	11 95	3,527 48
	96,838 18	22,342 88	17,346 19	1,977 85	2,563 37	1,515 11	40,926 30	743 76	2,662 90	186,916 54
Central Division— General account..... Manitoba..... Saskatchewan..... Alberta.....	.....	.....	.....	.....	.....	.....	.....	.....	134 39	134 39
	4,740 00	187 82	.....	.....	.....	.....	.....	.....	31 05	4,958 87
	6,878 65	3,680 59	.....	157 66	594 74	.....	202 50	123 00	184 86	11,822 00
	8,865 00	3,306 79	112 50	112 50	750 00	.....	252 50	470 30	62 51	13,932 10
British Columbia Division— General account.... British Columbia No. 1..... “ No. 2..... “ No. 3.....	8,546 99	3,527 52	75 00	106 25	350 00	.....	435 00	557 55	92 15	13,690 46
	29,030 64	10,702 72	187 50	376 41	1,694 74	.....	890 00	1,150 85	370 57	44,403 43
	18,698 89	1,762 53	.....	.....	.....	.....	.....	.....	4,093 71	24,555 13
	9,934 13	8,007 50	.....	.....	.....	.....	5,635 97	1,572 87	814 19	25,964 66
General Account.....	11,035 32	3,934 05	.....	.....	.....	.....	4,044 83	378 35	1,452 77	20,845 32
	14,118 52	6,534 69	.....	.....	.....	148 29	5,175 13	1,108 14	770 47	27,855 94
	53,786 86	20,238 77	.....	.....	.....	148 29	14,856 63	3,059 36	7,131 14	99,221 05
	.....	.....	.....	.....	.....	.....	.....	.....	15,523 04	15,523 04



SUMMARY

Eastern Division.....	96,838 18	22,342 88	17,346 19	1,977 85	2,563 37	1,515 11	40,926 30	743 76	2,662 90	.....	186,916 54
Quebec.....	.....	.....	.....	.....	.....	.....	.....	.....	134 39	.....	134 39
Central Division.....	29,030 64	10,702 72	187 50	376 41	1,694 74	.....	890 00	1,150 85	370 57	.....	44,403 43
British Columbia Division.....	53,786 86	20,238 77	.....	.....	.....	148 29	14,856 63	3,059 36	7,131 14	.....	99,221 05
General Account.....	.....	.....	.....	.....	.....	.....	.....	.....	15,523 04	.....	15,523 04
Totals.....	179,655 68	53,284 37	17,533 69	2,354 26	4,258 11	1,603 40	56,672 93	4,953 97	25,822 04	.....	346,198 45







"Blue Bird"	267 74	56 55	7 15	0 40	83 00	414 84
"Boy Bob"	186 67	75 74	5 20	0 95	61 00	329 56
"Choreboy"	355 88	117 22	27 55		271 00	771 65
"Corycia"	239 57	72 00	14 40	1 60	75 00	402 57
"Dixie"	1,323 55	197 16	46 85	3 13	739 20	2,309 89
"Dustie"	460 00	156 33	11 74	4 83	610 00	1,242 90
"Ethelda"				21 15		21 15
"Evanson"	564 00				39 34	603 34
"Flossie"	80 65	25 85	1 00		25 00	132 50
"Frisbie"	460 00	163 60	11 07	4 83	610 00	1,249 50
"Gene"	900 00	511 54	84 80	6 77	1,464 00	2,967 11
"Grace R."	600 00	126 40	11 00		187 00	924 40
"Hyak"	150 00	32 48	10 71		47 00	240 19
"Inanda"	250 00	11 40	2 00		76 00	339 70
"Iona"	905 00	161 55	38 51	6 91	918 00	2,029 97
"Law"	258 06	51 10	9 55		79 00	397 71
"Mable"	460 00	82 81	17 11		610 00	1,169 92
"Marie S."	1,125 00	230 80	55 09	13 83	1,015 00	2,439 72
"Murrelette"	1,088 44	766 39	87 09	3 16	1,776 00	3,721 08
"Mystery"	446 67	170 33	15 00		137 00	769 00
"McKenzie"	274 19	67 40	14 45	1 40	84 00	441 44
"Nell"	500 00	48 10	4 50	2 40	155 00	710 00
"Nicolson"	961 29	62 70	11 41		322 80	1,358 20
"Noolhalk"	900 00	213 17	45 38	11 18	854 00	2,023 73
"Odessa"	941 49	252 96	13 10	9 00	1,052 65	2,269 20
"Olive"	566 67	79 88	16 26		173 00	835 81
"Owl"	406 33	20 33	5 75	3 16	432 00	867 57
"Oyashimo"	1,075 32	280 71	24 28	8 06	1,429 40	2,817 77
"M"	1,252 58	232 44	27 41		782 34	2,294 77
"Pachena"	1,332 88	754 41	278 40	3 21	2,545 65	4,914 55
"Pioneer"	427 42	46 54	9 60		131 00	614 56
"Red Wing"					20 00	20 00
"Regal R."		321 73	42 47	8 08	340 00	712 28
"Reliance"	241 93	53 83	8 82		197 95	502 53
"Result"	887 09	256 46	31 73	3 12	266 18	1,444 58
"Salmo"		3 27				3 27
"Seal Cove"	782 42	4 20			1,485 00	2,271 62
"Shushartie"	206 45	33 44	4 85		71 10	315 84
"614"	210 00	58 85	10 60		58 00	337 45
"Sophann"	867 00	232 78	80 64	11 69	1,220 00	2,412 11
"Sophia"	285 16	33 78	7 50		95 92	422 36
"Spruce"	100 16	31 38	3 46	1 84	162 00	298 84
"Stubbs"	300 00	101 87	19 41		92 00	513 28
"Teal"	648 39	31 40	5 00		253 70	938 49
"Ukataw"	900 00	426 63	66 29	8 61	1,220 00	2,621 53
"Velina"	900 00	215 88	8 84	4 82	605 00	1,734 54
"Vera"			11 23			11 23
"We-Two"	611 29	104 73	8 25		182 82	907 09
"Whipp"	144 00				16 00	160 00
"W.T."	216 23	47 50	3 60		66 00	333 33
"York"	145 16				16 13	161 29

62,502 72



DETAILED STATEMENT OF FISHERIES PATROL SERVICE EXPENDITURE, 1922-23—Concluded

Establishments and Accounts	Paylist \$ cts.	Board or Prov'n.	Fuel \$ cts.	Repairs		Supplies			Clothing \$ cts.	Sundry \$ cts.	— \$ cts.	Total \$ cts.
				Hull \$ cts.	Engine \$ cts.	Engine \$ cts.	Deck \$ cts.	Stewards \$ cts.				
Departmental Boats—												
"Anina"			159 88	65 94	108 04	36 91	3 75			4 30	378 82	
"Babin No. 1"	786 10		128 04	8 15	20 67	30 50	18 06			9 70	1,001 22	
"Babine No. 2"	772 26		128 04	3 35	39 53	34 35	17 18			12 50	1,007 21	
"Black Raven"	1,857 90		913 14	75 50	358 02	93 03	123 49	97 18	1 30	139 87	3,659 43	
"Bonila"	1,517 24		805 61	210 82	475 34	107 17	20 55	48 14		109 71	3,294 58	
"Cohoe"	786 68		458 92	39 09	218 52	106 90	38 15	51 83		156 05	1,856 14	
"Egret"	1,676 00		843 44	157 15	266 50	134 76	37 20	17 02		249 11	3,381 18	
"Elk"	3,395 00		613 85	270 35	97 97	57 09	2 55	38 00	8 97	150 81	4,634 59	
"Fispa"	5,003 57	1,514 92	4,836 63	547 23	1,138 58	510 59	94 52	303 47	62 70	363 63	14,375 84	
"Foam"	5,040 00	14 85	765 65	344 98	223 47	46 54	86 48	45 73	14 52	517 95	7,100 17	
"Givenchy"	26,525 42	6,243 62	8,334 29	1,206 81	4,527 46	1,564 34	913 46	619 71	1,082 77	996 89	52,014 77	
"Gull"	1,260 00		732 30	159 79	396 51	101 20	31 15	97 30		318 05	3,096 30	
"Hawk"	1,553 78		465 04	89 52	73 53	114 60	71 71	25 80		196 13	2,590 11	
"Heron"	1,963 45		802 06	85 26	71 61	77 37	18 13	48 96		116 75	3,183 59	
"Humming Bird"			22 77		5 75	7 91				3 20	39 63	
"Kayex"	862 12		345 61	26 53	223 26	151 07	32 15	101 46		43 01	1,785 21	
"Linnet"	1,520 16		419 64	18 00	17 23	54 56	1 85	31 91		43 73	2,107 08	
"Marfish"	6,199 37	1,508 71	1,869 29	1,005 03	766 28	477 85	169 76	331 32	102 03	823 49	13,253 13	
"Merlin"	1,238 87		308 38	12 77	44 81	69 92	25 11	25 38		52 60	1,777 84	
"Merrysea"	4,750 23		1,366 19	138 47	198 60	187 52	18 47	27 94		266 73	6,954 15	
"Ptarmigan"					5 38					1 25	6 63	
"Semiahmo"	2,107 33		361 38	106 43	68 86	25 74	2 55	14 69		88 11	2,775 09	
"Sean"	5,040 00		948 89	204 93	358 12	69 92	55 41	71 67	17 93	385 43	7,152 30	137,425 01
	107,596 40	9,320 45	33,845 66	4,776 10	9,849 59	5,433 49	1,866 56	2,194 96	1,314 39	31,841 44		208,039 04
General Account.....										92 83		92 83

SUMMARY

Eastern Division.....	22,039 70	43 76	6,356 03	972 86	2,115 73	1,198 50	414 38	411 60	168 17	2,518 02		36,238 75
Quebec.....			34 20	310 57	37 18					58 50		440 45
Central Div....	9,473 33	2,660 01	6,842 79	913 37	179 15	321 94	803 36	180 63	299 18	178 29		21,852 05
British Columbia Division...	107,596 40	9,320 45	33,845 66	4,776 10	9,849 59	5,433 49	1,866 56	2,194 96	1,314 39	31,841 44		208,039 04
General Account.....										92 83		92 83
Totals .....	139,109 43	12,024 22	47,078 68	6,972 90	12,181 65	6,953 93	3,084 30	2,787 19	1,781 74	34,689 08		266,663 12



SESSIONAL PAPER No. 29

## DETAILED STATEMENT OF FISH CULTURE EXPENDITURE, 1922-23

Hatcheries	Salaries	Mainten- ance	Total of hatchery	Total of provinces
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
<i>Nova Scotia—</i>				
Bedford.....	1,260 00	3,943 71	5,203 71	
Lindloff.....		468 55	468 55	
Long Beach Pond.....		92 03	92 03	
Margaree.....	3,600 00	5,154 82	8,754 82	
Margaree Pond.....	392 84	2,407 85	2,800 69	
Middleton.....	2,415 00	4,128 09	6,543 09	
Windsor.....	1,320 00	2,216 38	3,536 38	
	8,987 84	18,411 43		27,399 27
<i>Prince Edward Island—</i>				
Kelly's Pond.....	2,505 00	2,296 56		4,801 56
<i>New Brunswick—</i>				
Grand Falls.....	2,430 00	2,267 36	4,697 36	
Miramichi.....	2,394 39	9,148 11	11,542 50	
Miramichi Pond.....		2,107 34	2,107 34	
Nepisiquit.....		425 62	425 62	
New Mills Pond.....	449 50	4,913 12	5,362 62	
Restigouche.....	2,820 00	2,405 09	5,225 09	
Sparkle.....		491 86	491 86	
St. John.....	2,490 00	7,347 98	9,837 98	
St. John Pond.....		10,259 57	10,259 57	
Tobique.....		348 81	348 81	
	10,583 89	39,714 86		50,298 75
<i>Quebec—</i>				
Gaspé.....	705 00	114 53	819 53	
Tadoussac.....	390 00	886 03	1,276 03	
York.....		572 92	572 92	
	1,095 00	1,573 48		2,668 48
<i>Ontario—</i>				
Collingwood.....	3,840 00	8,063 76	11,903 76	
Kenora.....	3,932 44	9,240 57	13,173 01	
Kingsville.....	3,915 00	6,444 07	10,359 07	
Newcastle.....		150 00	150 00	
Port Arthur.....	3,780 00	2,448 30	6,228 30	
Sarnia.....	3,900 00	5,150 36	9,050 36	
Southampton.....	3,573 31	5,910 20	9,483 51	
Thurlow.....	5,325 00	6,596 68	11,921 68	
Wiarton.....	4,140 00	3,280 47	7,420 47	
	32,405 75	47,284 41		79,690 16
<i>Manitoba—</i>				
Dauphin River.....	1,635 00	6,521 47	8,156 47	
Dauphin River Spawn Camp.....		1,121 96	1,121 96	
Gull Harbour.....	2,580 00	2,015 34	4,595 34	
Winnipegosis.....	2,670 00	14,243 56	16,913 56	
	6,885 00	23,902 33		30,787 33
<i>Alberta—</i>				
Banff.....	2,820 00	3,494 77	6,314 77	
Spray Lakes.....		1,572 55	1,572 55	
	2,820 00	5,067 32		7,887 32
<i>Saskatchewan—</i>				
Qu'Appelle.....	2,415 00	4,137 84		6,552 84



DETAILED STATEMENT OF FISH CULTURE EXPENDITURE, 1922-23—*Concluded*

Hatcheries	Salaries	Mainten- ance	Total of hatchery	Total of provinces
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
<i>British Columbia—</i>				
Anderson.....	130 00	7,196 62	7,326 62	
Babine.....		8,435 53	8,435 53	
Cowichan.....	356 45	6,523 11	6,879 56	
Cultus.....	70 00	4,980 63	5,050 63	
Gerrard.....	30 00	1,944 62	1,974 62	
Harrison.....	125 63	12,744 22	12,869 85	
Kennedy.....	130 00	7,063 61	7,193 61	
Lloyd's Creek Eyeing St'n.....		1,418 95	1,418 95	
New Westminster.....		49 42	49 42	
Pemberton.....	140 00	14,465 73	14,605 73	
Pitt.....	75 00	4,386 48	4,461 48	
Rivers Inlet.....	115 00	13,541 37	13,656 37	
Skeena.....	199 70	11,939 39	12,139 09	
Stuart.....	120 00	6,772 46	6,892 46	
General.....	6,896 90	3,586 71	10,483 61	
	*8,388 68	105,048 85		113,437 53
<i>General Account.....</i>	4,260 00	4,546 74		8,806 74

SUMMARY

Nova Scotia.....	8,987 84	18,411 43		27,399 27
Prince Edward Island.....	2,505 00	2,296 56		4,801 56
New Brunswick.....	10,583 89	39,714 86		50,298 75
Quebec.....	1,095 00	1,573 48		2,668 48
Ontario.....	32,405 75	47,284 41		79,690 16
Manitoba.....	6,885 00	23,902 33		30,787 33
Alberta.....	2,820 00	5,067 32		7,887 32
Saskatchewan.....	2,415 00	4,137 84		6,552 84
British Columbia.....	*8,388 68	105,048 85		113,437 53
General Account.....	4,260 00	4,546 74		8,806 74
	80,346 16	251,983 82		332,329 98

\* B.C. Salaries mostly distributed through maintenance.



DETAILED STATEMENT OF FISHERIES PROTECTION SERVICE EXPENDITURE, 1922-23

Establishments and Accounts	Pay-list \$ cts.	Board or Prov'n \$ cts.	Fuel \$ cts.	Repairs		Supplies			Clothing \$ cts.	Sundry \$ cts.	— \$ cts.	Total \$ cts.
				Hull \$ cts.	Engine \$ cts.	Engine \$ cts.	Deck \$ cts.	Stewards \$ cts.				
General Account.....	52 32									68 29		120 61
Eastern Division—												
“Arleux”.....	18,253 47	3,520 66	7,289 74	546 32	494 90	918 51	2,109 13	404 40	98 03	975 35	34,610 51	
“Arras”.....	20,516 27	5,461 53	9,562 19	508 66	327 64	827 73	1,660 98	212 92	112 86	558 20	39,748 98	
“Hochelaga”.....	600 00			14 85		Cr. 2,458 11	Cr. 514 10				Cr. 2,357 36	
“Petrel”.....							Cr. 117 65				Cr. 117 65	
	39,369 74	8,982 19	16,851 93	1,069 83	822 54	Cr. 711 87	3,138 36	617 32	210 89	1,533 58		71,884 48
Great Lakes—												
“Becancour”.....	5,667 20	2,490 22	2,628 62	666 83	247 79	239 77	213 94	82 84		459 51	12,696 72	
“Laviolette”.....	7,058 16	2,179 65	3,652 98	578 10	71 63	201 39	635 41	79 29	69 00	674 22	15,199 88	
“Lavaltrie”.....						4 86					4 86	
	12,725 36	4,669 87	6,281 60	1,244 93	319 42	446 02	849 35	162 13	69 00	1,133 73		27,901 41
Western Division—												
“Armentieres”.....	180 00						10 86			66 49	257 35	
“Estevan”.....										78 90		
“Malaspina”.....	29,987 06	5,355 92	8,917 10	363 37	2,724 30	976 10	974 97	663 38	1,407 28	1,824 12	53,193 66	
“Stadacona”.....	480 00					2 32	Cr. 28 49	3 70		17 57	475 10	
“Thiepval”.....	26,882 63	4,888 65	7,013 91	171 13	140 14	679 52	516 27	504 05	804 06	1,127 44	42,727 80	
	57,529 69	10,244 57	15,931 01	534 50	2,864 44	1,657 94	1,473 61	1,171 13	2,211 34	3,114 52		96,732 75

SUMMARY

General Account.....	52 32									68 29		120 61
Eastern Division.....	39,369 74	8,982 19	16,851 93	1,069 83	822 54	Cr. 711 87	3,138 36	617 32	210 89	1,533 55		71,884 48
Great Lakes.....	12,725 36	4,669 87	6,281 60	1,244 93	319 42	446 02	849 35	162 13	69 00	1,133 73		27,901 41
Western Division.....	57,529 69	10,244 57	15,931 01	534 50	2,864 44	1,657 94	1,473 61	1,171 13	2,211 34	3,114 52		96,732 75
	109,677 11	23,896 63	39,064 54	2,849 26	4,006 40	1,392 09	5,461 32	1,950 58	2,491 23	5,850 09		196,639 25







## APPENDIX No. III.

The following is a statement of the different kinds of licenses issued by the different Inspectors during the 1922-23 season:—

## MAGDALEN ISLANDS, QUEBEC—S. T. GALLANT, Inspector

Kind of Licenses—	Number of Licenses Issued
Lobster fisherman's.....	373
Lobster packing.....	25
Lobster packing extensions..... 19	
Smelt fishing.....	9
Spec. fishery for herring trap nets.....	47
Spec. fishery for seine net fishing.....	22
Receipt books.....	
	<hr/> 476

## PRINCE EDWARD ISLAND—S. T. GALLANT, Inspector

Lobster fisherman's.....	1,831
Lobster packing.....	186
Lobster packing extensions..... 110	
Fish cannery.....	6
Quahaug fishery.....	2
Trap net.....	4
Smelt gill net.....	284
Smelt bag net.....	221
Oyster fishery.....	241
Receipt books.....	
	<hr/> 2,775

## NOVA SCOTIA DISTRICT No. 1—A. C. MACLEOD, Inspector

Lobster fisherman's.....	2,144
Lobster packing.....	52
Lobster packing extensions..... 43 (1 cancelled)	
Fish cannery.....	1
Trap nets.....	47
Special angling permits.....	30
Salmon trap net, pound net or weir.....	134 (2 cancelled)
Salmon gill net or drift net.....	28
Smelt gill net.....	162
Smelt bag net.....	45
Oyster fishery.....	84
Receipt books.....	
	<hr/> 2,727 (2 cancelled)

## NOVA SCOTIA DISTRICT No. 2—D. H. SUTHERLAND, Inspector

Lobster fisherman's.....	3,007
Lobster packing.....	73
Lobster packing extensions..... 61	
Fish cannery.....	6
Trap net.....	167
Drag seine.....	179
Salmon net.....	20
Special angling permits.....	21
Shad gill net or drift net.....	20
Salmon trap net, pound net or weir.....	1
Salmon gill net or drift net.....	4
Smelt gill net.....	152
Smelt bag net.....	193
Oyster fishery.....	106
Special lobster pound licenses.....	1
Special lobster pound certificates..... 50	
Scallop fishery.....	3
Herring weir.....	21
Receipt books.....	
	<hr/> 3,974



14 GEORGE V, A. 1924

## NOVA SCOTIA, DISTRICT No. 3—H. H. MARSHALL, Inspector

Lobster fisherman's.....	3,480
Lobster packing.....	35
Lobster packing extensions.....	7
Fish cannery.....	10 (1 cancelled)
Trap net.....	216 (1 cancelled)
Special angling permits.....	325 (2 cancelled)
Shad gill net or drift net licenses.....	Nil
Smelt gill net.....	95
Smelt bag net.....	29
Scallop fishery.....	249
N. S. herring weir.....	80
Special lobster pound.....	6
Lobster pound certificates.....	151
Lease of Long Beach pond.....	1
Receipt books.....	
	<hr/>
	4,525 (4 cancelled)

## NEW BRUNSWICK, DISTRICT No. 1—J. F. CALDER, Inspector

Lobster fisherman's.....	609
Fish cannery.....	6
Salmon fishery.....	10
Shad gill net or drift net.....	9
Scallop fishery.....	10
Herring weir.....	492 (1 cancelled)
Permits to dig soft shell or long neck clams.....	126
Special lobster pound.....	4
Lobster pound certificates.....	251
Lease of Dark Harbour.....	1
Receipt books.....	
	<hr/>
	1,266 (1 cancelled)

## NEW BRUNSWICK, DISTRICT No. 2—R. CROCKER, Inspector

Lobster fisherman's.....	2,000
Lobster packing.....	177
Lobster packing extensions.....	50
Fish cannery.....	1
Quahaug fishery.....	118
Salmon fishery.....	450 (1 cancelled)
Salmon net permits.....	50
Bass gill net.....	Nil
Shad gill net or drift net.....	31
Gaspereau pound net or trap net.....	55
Smelt gill net.....	138
Smelt bag net.....	3,216 (44 free)
Oyster fishery.....	467
Bass fishery.....	62
Herring weirs.....	Nil
Lobster pound licenses.....	2
Lobster pound certificates.....	129
Receipt books.....	
Oyster permits.....	150
	<hr/>
	6,917 (1 cancelled, 44 free)

## NEW BRUNSWICK, DISTRICT No. 3—H. E. HARRISON, Inspector

Whitefish fishery.....	10
Salmon fishery.....	112
Salmon net permits for non-tidal waters.....	123
Sturgeon fishery.....	9
Shad gill net or drift net.....	254
Smelt gill net.....	1
Smelt bag net.....	Nil
Bass fishery.....	16
Receipt books.....	
	<hr/>
	525



## SESSIONAL PAPER No. 29

## MANITOBA—J. B. SKAPTASON, Inspector

Special fishery.....	2,077 (1 cancelled)
Commercial sturgeon.....	134
Domestic sturgeon.....	22
Special angling permits for non-residents.....	22
Settler's permits.....	778
Receipt books.....	2,213 (3 cancelled)
	<hr/> 3,033 (1 cancelled)

## SASKATCHEWAN—G. C. MACDONALD, Inspector

Domestic sturgeon.....	8
Commercial sturgeon.....	7
Domestic.....	93 (1 cancelled and 1 free)
Commercial and fisherman's.....	438 (1 free and 1 cancelled)
Indian and half-breed permits.....	483
Receipt books.....	545 (2 cancelled)
	<hr/> 1,029 (2 cancelled, 2 free)

## ALBERTA—J. D. WILSON, Inspector

Fish cannery.....	1
Special angling permits.....	4,331 (13 cancelled and 6 free)
Domestic fishery.....	131 (8 cancelled)
Commercial and fisherman's.....	621 (6 cancelled)
Indian and half-breed permits.....	294
Receipt books.....	758
	<hr/> 5,378 (27 cancelled and 6 free)

## BRITISH COLUMBIA—J. A. MOTHERWELL, Inspector

Fish cannery.....	36 (1 cancelled)
Special angling permits.....	52
Indian permits.....	174
Abalone fishery.....	2
Crab fishery.....	98
Smelt or sardine.....	50
B.C. gill net, drift net or drag seine licenses operated in conjunction with power boats.....	451 (1 cancelled)
B.C. herring or pilchard gill net or drift net licenses.....	38
B.C. herring drag seine.....	Nil
B.C. herring purse seine.....	30 (1 cancelled)
Herring drag seine or purse seine.....	Nil
Sturgeon fishery.....	3
Salmon trolling.....	1,517 (4 cancelled)
Salmon gill net or drift net.....	4,490 (12 cancelled)
Salmon trap net.....	4
Salmon purse seine.....	148 (6 cancelled)
License to a captain of a salmon purse seine boat, drag seine or herring purse seine.....	139
B.C. salmon drag seine.....	40 (4 cancelled)
Salmon cannery.....	65
Salmon curing.....	63 (2 cancelled)
B.C. license to a person engaged in cold storage or fish packing to buy fresh fish from fishermen.....	126 (1 cancelled)
Reduction works.....	4
B.C. boat licenses to buy salmon from fishermen.....	248
Whale factory licenses.....	3
Salmon curing permits.....	1
Grayfish licenses.....	1
Special seal destruction permits.....	23
	<hr/> 7,806 (32 cancelled)

## YUKON TERRITORY

Special fishery.....	21
	<hr/> 21

## MODUS VIVENDI LICENSES

Atlantic coast.....	91
Pacific coast.....	148
	<hr/> 239

Total number issued..... 40,090 (70 cancelled and 52 free)



APPENDIX No. IV.

LIST of United States Fishing vessels which entered Canadian ports on the Atlantic Coast during the year ended December 31, 1922.

Name of Vessel	Tonnage	Number of men in crew	Number of times entered	Reasons for Entry	Quantity of fish landed
					cwt.
Acushla.....	70	23	12	Bait, repairs, supplies, shelter, tranship fish.....	
Aeolus.....	16	8	6	Supplies, shelter, land sick man...	
Agnes.....	65	19	4	Shelter.....	
Alice Velicia.....	16	10	1	".....	
Alice & Wilson.....	16	10	8	" , ice.....	
Allen C.....	15	3	1	".....	
American.....	93	23	8	Ice, bait, shelter.....	
Angeline C. Nunan.....	58	21	3	Shelter.....	
A. Pratt Andrew.....	33	6	1	Ice.....	
Arthur James.....	95	21	1	Shelter.....	
Audrey & Theo.....	15	6	1	" , tranship fish.....	
Avalon.....	69	21	11	Bait, land fish, oil, ice, repairs, shelter, supplies.....	37
Aviator.....	210	9	1	Shelter.....	
Bay State.....	81	25	8	Ice, repairs, bait, shelter.....	
Benjamin A. Smith.....	75	25	11	Ice, supplies, shelter, bait.....	
Benjamin M. Wallace....	49	19	1	Shelter.....	
Bettina.....	66	17	5	".....	
Catherine.....	77	27	8	Ice, shelter, bait, repairs, dories....	
Catherine Burke.....	68	19	22	Shelter, bait.....	
Cavalier.....	96	22	6	Supplies, to ship men, bait.....	
Commonwealth.....	93	25	4	Shelter.....	
Constellation.....	87	19	11	" , bait.....	
Corinthian.....	97	25	12	Bait, land fish, oil, repairs, shelter..	93
Dawn.....	79	25	4	Shelter.....	
Edith C. Rose.....	70	23	5	Repairs, supplies, shelter, to ship men	
Edith Silveria.....	47	19	5	Land sick man, food, shelter.....	
Eleanor.....	36	9	3	Coal, shelter.....	
Elizabeth Howard.....	90	23	7	Bait, supplies, shelter.....	
Elizabeth M. King.....	13	8	2	Shelter, tranship fish.....	
Elizabeth W. Nunan...	48	17	5	Shelter, repairs.....	
Elk.....	66	19	9	Bait, oil, supplies, shelter.....	
Elmer E. Gray.....	71	21	23	Bait, ice, repairs, shelter, supplies..	
Elsie G. Silva.....	50	21	5	Ice, supplies, shelter, tranship fish...	
Elsie.....	98	25	2	Shelter, to ship crew, water.....	
Ellen T. Marshall.....	75	21	6	" , supplies.....	
Evelyn & Ralph.....	16	16	12	" , landing fish.....	
Fannie E. Prescott.....	74	19	5	Bait, ice, oil, supplies.....	
Flor Del Mar.....	55	7	1	Shelter.....	
Flora L. Oliver.....	59	21	9	Bait, repairs, shelter, supplies.....	
Frances S. Grueby.....	94	25	4	Bait, ice, shelter.....	
Frank S. Pierce.....	12	7	3	Shelter, supplies.....	
Funchal.....	20	11	1	Shelter.....	
Gaspe.....	176	10	1	".....	
Gertrude de Costa.....	61	19	2	Repairs, shelter.....	
Glover.....	58	25	1	Shelter.....	
Governor Foss.....	88	23	4	".....	
Governor Marshall.....	60	23	22	Bait, ice, land fish, shipping seamen, supplies, repairs.....	71
Good Luck.....	55	19	17	Shelter, tranship fish.....	
Grace Darling.....	43	15	3	".....	
Harmony.....	66	18	10	" , bait.....	
Harvard.....	72	19	3	".....	
Hazel R. Hines.....	79	16	3	To ship men, ice, supplies.....	
Helena.....	40	17	5	Shelter.....	
Helja Silva.....	77	20	4	".....	
Henrietta.....	62	19	2	".....	
Henry Ford.....	90	25	7	Bait, dories, ice, shelter, supplies...	
Herbert Parker.....	78	23	13	Bait, shelter, supplies.....	
Hesperus.....	79	25	12	Bait, land fish, repairs, shelter, supplies.....	70



## SESSIONAL PAPER No. 29

LIST of United States Fishing vessels which entered Canadian ports on the Atlantic Coast during the year ended December 31, 1922—*Con.*

Name of Vessel	Tonnage	Number of men in crew	Number of times entered	Reasons for Entry	Quantity of fish landed
					cwt.
Hope Leslie.....	19	13	8	Bait, repairs, shelter, supplies.....	
Hortense.....	43	19	5	Ice, shelter.....	
Imperator.....	79	23	11	Bait, ice, land fish, shelter, supplies, tranship fish.....	70
Ingomar.....	85	20	3	Landing seaman's corpse, shelter, supplies.....	
Jeanette.....	51	19	1	Bait, ice, shelter, supplies.....	
Joffre.....	80	25	4	".....	
John J. Fallon.....	60	19	5	Shelter.....	
John J. Taylor.....	60	19	1	".....	
Joseph Warner.....	28	7	1	".....	
Joseph Warner.....	11	7	6	Ice, shelter.....	
Killarney.....	73	21	6	Bait, ice, shelter, landing sick man.....	
L. A. Dunton.....	94	24	3	" , landing fish, shelter, supplies..	112
Lark.....	121	23	1	Shelter.....	
Laura Enos.....	17	5	9	Ice, shelter.....	
Laura Goulart.....	73	21	1	Repairs.....	
Leonora Silveria.....	51	20	2	Shelter.....	
Leslie.....	20	6	3	Ice, shelter.....	
Lincoln.....	12	9	4	".....	
Lois H. Corkum.....	34	12	12	Salt, shelter, supplies, repairs, land fish.....	55
Louis Enos.....	9	5	1	Shelter.....	
Louisa B. Marshall.....	74	21	3	Bait, shelter.....	
Louisa R. Sylva.....	92	23	13	Bait, ice, shipping men, shelter, supplies.....	
Lucia.....	43	17	6	Shelter.....	
Margaret.....	72	19	1	".....	
Margaret.....	62	19	1	".....	
Marion McLoon.....	11	7	9	" . supplies.....	
Marshall Foch.....	64	23	10	Bait, ice, repairs, supplies.....	
Mary de Costa.....	62	19	2	Shelter, landing fish.....	250
Mary E. O'Hara.....	49	24	8	".....	
Mary F. Curtis.....	65	23	34	Bait, ice, salt, shipped men, shelter, supplies.....	
Mary T. Fallon.....	48	16	6	Shelter.....	
Mayflower.....	113	25	12	Bait, ice, shelter, supplies.....	
Medric.....	189	21	1	Repairs.....	
Medric.....	11	6	1	Shelter.....	
Melta Comet.....	22	6	3	Land fish, shelter.....	55
Mildred Robinson.....	73	21	4	Bait, repairs, land fish.....	32
Minerva.....	13	6	8	Ice, shelter, supplies.....	
Monarch.....	83	25	15	Bait, ice, shelter, ship men, supplies.	
Natalie Hammond.....	51	21	6	Repairs, shelter, ship men.....	
Nickerson.....	23	10	6	Shelter.....	
Nirvana.....	50	12	4	".....	
Nyoda.....	28	12	4	".....	
Oretha F. Spinney.....	87	24	4	Bait, land fish.....	66
Orion.....	39	14	3	Repairs, shelter.....	
Osion.....	73	14	1	Shelter.....	
Patriot.....	12	8	1	".....	
Philip P. Manta.....	43	19	9	".....	
Pilgrim.....	63	18	3	Bait, land fish, shelter.....	2
Pilot.....	18	8	1	Shelter.....	
Pioneer.....	128	19	1	Land sick seaman.....	
Pioneer.....	53	19	8	Shelter.....	
Plover.....	208	21	1	Repairs.....	
Progress.....	61	23	1	Dories.....	
Puritan.....	96	24	2	Bait, ice.....	
Republic.....	48	22	6	Bait, ice, land fish, supplies.....	108
Restless.....	35	8	4	Shelter.....	
Restless.....	15	8	1	".....	
Rex.....	75	23	15	Bait, ice, land sick man, land fish, shelter, supplies.....	132
Rhodora.....	70	19	1	Shelter.....	
Ripple.....	96	24	2	Ice, supplies, water.....	
Robert & Arthur.....	67	23	6	Land fish, shelter.....	500
Ruth.....	49	18	4	Shelter, water.....	
Ruth & Margaret.....	78	23	7	Ice, land fish, supplies.....	21



14 GEORGE V, A. 1924

LIST of United States Fishing vessels which entered Canadian ports on the Atlantic Coast during the year ended December 31, 1922—*Con.*

Name of Vessel	Tonnage	Number of men in crew	Number of times entered	Reasons for Entry	Quantity of fish landed
					cwt.
Sadie M. Nunan.....	36	20	6	Shelter.....	
Sibyl.....	18	8	5	Land fish, shelter.....	7
Snipe.....	208	21	3	Repairs.....	
Stiletto.....	91	20	17	Bait, shelter.....	
Sunapee.....	18	9	3	Shelter.....	
Surf.....	119	25	4	".....	
Teazer.....	59	21	9	Land fish, shelter, ship men.....	92
Thelma.....	28	12	3	Shelter.....	
Thomas S. Gorton.....	92	25	8	Bait, ice, repairs, shelter, ship men. supplies.....	
T. M. Nicholson.....	90	23	4	Bait, repairs, shelter.....	
Verna G.....	12	7	2	Shelter, tranship fish.....	
Vida M. McKeown.....	83	19	1	".....	
Waldo L. Stream.....	66	21	1	Repairs.....	
Waltham.....	44	22	4	Shelter.....	
Wesley W. Sennet.....	11	6	4	Ice, shelter, supplies.....	
Yankee.....	96	25	2	Shelter.....	

LIST of United States Fishing vessels which entered Canadian ports on the Pacific Coast during the year ended December 31, 1922.

Name of Vessel	Tonnage	Number of men in crew	Number of times entered	Reasons for Entry	Quantity of fish landed
					cwt.
A.K.....	7	2	1	Bait.....	
Active.....	4	2	1	".....	
Actor.....	7	2	2	" , land fish.....	20
Adele.....	3	2	1	".....	
Adeline.....	6	2	1	Land fish.....	760
Advance.....	4	3	10	Bait, landing fish, shelter.....	87
Agnes.....	17	5	3	" , shelter.....	
Alaska.....	44	13	1	For orders.....	
Alawa.....	4	2	1	Land fish.....	20
Albatross.....	40	13	9	Bait, land fish, shelter.....	1,487
Alf.....	28	4	1	Land fish.....	2,720
Alfa.....	12	5	5	Bait.....	
Alice B.....	13	5	13	" , land fish.....	80
Alpha.....	3	3	1	Land fish.....	140
Alten.....	43	16	6	Bait, land fish, for orders.....	7,540
America.....	25	11	11	Bait.....	
America.....	11	4	1	Land fish.....	460
Amunsden.....	16	6	1	Bait.....	
Annie.....	11	4	1	Land fish.....	460
Anna J.....	22	6	1	".....	3,080
Anna J. Larsen.....	25	11	5	Bait.....	
Anita Phillips.....	14	2	1	Shelter.....	
Antler.....	22	5	10	Bait, land fish, for orders.....	120
Antler.....	13	4	1	" ".....	340
Arcade.....	14	4	12	" ".....	2,540
Arctic.....	29	11	1	Land fish.....	40
Arctic.....	4	3	1	".....	40
Arthur.....	3	1	1	".....	40
Atlantic.....	25	11	3	Bait, land fish.....	2,580
Atlas.....	31	8	2	" ".....	840
August.....	16	3	2	For orders, shelter.....	
Augusta.....	19	4	1	Land fish.....	1,660
Aurora.....	13	5	10	" , bait.....	300
Baltic.....	20	5	1	".....	540
Bartolome.....	4	3	1	".....	1,040
Beaver.....	17	5	14	" , bait.....	240
Bernice A.....	30	6	1	".....	500
Betty.....	14	5	1	".....	260



## SESSIONAL PAPER No. 29

LIST of United States Fishing vessels which entered Canadian ports on the Pacific Coast during the year ended December 31, 1922—*Con.*

Name of Vessel	Tonnage	Number of men in crew	Number of times entered	Reasons for Entry	Quantity of fish landed
					cwt.
Bluebird.....	4	1	1	"	40
Bob. F. 857 L.....	1	2	2	Unknown.....	
Bravo.....	4	2	1	"	
Bring Gold.....	12	5	1	Land fish.....	1,200
Brothers.....	13	5	1	"	2,060
Bryan.....	15	4	1	"	360
Burnett.....	30	3	1	"	400
Cal. C. 834.....	3	3	2	Shelter, unknown.....	
California.....	20	5	4	Bait, land fish.....	560
Cape Clear.....	13	4	7	"	440
Carolan.....	18	6	1	Land fish.....	640
Caroline.....	5	2	1	Shelter.....	
Castor.....	6	2	1	"	
Cedric.....	19	5	2	For orders, land fish.....	540
Chancellor.....	13	5	6	Land fish, shelter, bait.....	840
Chimera.....	9	3	16	Shelter, bait.....	
Christine.....	4	1	1	Unknown.....	
Cito.....	4	2	1	"	
Clara.....	4	2	1	Land fish.....	180
Clarion.....	15	3	1	Under seizure.....	
Commonwealth.....	60	15	1	Land fish.....	1,800
Companion.....	30	4	1	"	1,820
Condor.....	4	2	1	"	40
Confidence.....	22	3	1	"	40
Constitution.....	39	13	3	" , bait, for orders.....	1,180
Convention.....	20	5	8	"	560
Cora.....	4	3	1	"	360
Corona.....	19	6	5	" , bait.....	320
Crescent.....	8	4	4	" " , shelter, supplies.....	1,040
Dagney.....	4	3	1	"	60
Daily.....	26	6	1	"	2,540
Daisy.....	18	6	1	"	120
Defense.....	20	5	6	" , bait.....	960
Democrat.....	27	6	1	"	1,560
Dependent.....	4	3	1	"	100
Dewage.....	4	1	1	Shelter.....	
Diamond T.....	8	2	1	Land fish.....	2,340
Dip.....	4	1	3	Unknown, land fish.....	6
Discovery.....	10	4	13	Land fish, bait, unknown.....	80
Dolphin.....	5	2	1	Unknown.....	
Dora H.....	15	5	7	Bait, land fish, unknown.....	25
Eagle.....	27	5	1	Land fish.....	1,160
Eagle.....	15	6	1	"	520
Eastern Point.....	4	3	1	"	880
Eidsvold.....	15	5	9	" , bait.....	1,160
Eleanora.....	16	5	5	Bait.....	
Elfin.....	4	3	1	Land fish.....	60
Elsie.....	14	5	1	"	120
Elliott.....	28	8	1	"	260
Emma.....	4	4	1	"	60
Emblem.....	4	2	1	"	360
E. Neilson.....	15	4	1	"	1,200
Enterprise.....	7	3	13	Bait.....	
Eureka.....	4	2	1	Land fish.....	60
Evolution.....	17	9	9	" , bait.....	180
Fairway.....	19	5	5	"	1,460
Faith.....	7	3	4	Bait.....	
F. C. Hergert.....	15	5	9	Land fish, bait.....	320
Fisher.....	14	5	1	"	180
Flamingo.....	13	5	7	Bait.....	
Flattery.....	10	3	1	Land fish.....	560
Flora & Margaret.....	15	5	9	" , bait, for orders.....	920
Florence.....	38	11	1	"	460
Fortuna.....	21	8	11	Bait, land fish.....	100
Fortuna.....	15	5	1	"	
Forward.....	18	4	2	" , land fish.....	2,460
Frane.....	4	3	1	Land fish.....	660
Fremont.....	10	5	8	" , shelter.....	280
G. A. 331.....	2	1	1	Unknown.....	



14 GEORGE V, A. 1924

LIST of United States Fishing vessels which entered Canadian ports on the Pacific Coast during the year ended December 31, 1922—*Con.*

Name of Vessel	Tonnage	Number of men in crew	Number of times entered	Reasons for Entry	Quantity of fish landed
					cwt.
George B.....	34	8	1	Shelter.....	
Get the Hook.....	10	1	1	".....	
Glacier.....	12	4	1	Land fish.....	920
Gladstone.....	23	7	1	".....	1,400
Gony.....	12	5	2	Bait.....	
Grant.....	5	2	1	Land fish.....	100
Grayling.....	16	5	5	" , bait.....	1,280
Groth.....	7	3	1	".....	920
Hanna.....	11	3	1	Shelter.....	
Happy.....	12	4	1	Land fish.....	1,380
Harding.....	28	5	1	Bait.....	
Harding.....	19	5	13	Land fish, bait.....	400
Harding.....	15	4	1	".....	100
Harvestor.....	15	5	3	" , bait.....	40
Hazel.....	7	4	1	".....	380
Hazel H.....	21	5	10	" , bait.....	160
Helen D.....	8	3	1	".....	100
Helgeland.....	56	15	1	".....	3,460
Herbert B.....	13	7	1	".....	20
Hiawatha.....	6	3	2	Shelter.....	
Hi Gill.....	11	4	1	Land fish.....	400
Hilda.....	10	3	6	" , shelter.....	177
I. K. L.....	7	2	2	Bait, unknown.....	
Imperial.....	19	5	3	Land fish.....	440
I.X.L.....	7	2	1	Unknown.....	
Jean.....	9	2	1	Bait.....	
Jennie F. Decker.....	16	8	8	" , land fish.....	13
Johannah.....	16	5	1	Land fish.....	360
J. P. Todd 1.....	4	2	1	".....	580
June.....	15	5	1	".....	1,060
June F. 643.....	4	2	11	" , bait, unknown.....	35
K. 377.....	4	2	1	".....	220
Katella.....	16	5	9	" , bait.....	140
Kayak.....	8	3	1	Bait.....	
Kennebec.....	13	3	1	Land fish.....	80
Kodiak.....	38	13	7	" , bait.....	1,920
Lady Luck.....	9	4	1	Shelter.....	
Lancing.....	16	4	1	Land fish.....	1,100
La Paloma.....	14	11	11	" , bait.....	380
Laura.....	7	3	3	".....	80
Lebanon.....	14	5	11	" , for orders.....	160
Leif II.....	21	3	1	".....	2,140
Lenor.....	14	4	1	".....	1,400
Liberty.....	44	15	10	" , bait, for orders.....	2,820
Liberty.....	4	2	1	Bait.....	
Lincoln.....	23	5	3	" , land fish.....	780
Lincoln.....	4	3	1	Land fish.....	640
Louise.....	16	6	1	Bait.....	
Lovera.....	4	2	1	Land fish.....	40
Lummen.....	10	4	1	".....	540
Madeline J.....	21	5	10	Bait.....	
Margaret T.....	10	3	1	Land fish.....	100
Mars.....	9	4	1	".....	980
Mary.....	16	8	17	Bait, tried to sell fish.....	
Mary K.....	7	1	1	Supplies.....	
Mary L.....	7	2	1	Bait.....	
Mermaid.....	19	5	10	" , for orders, land fish.....	140
M. Grant.....	5	3	1	".....	
Mildred.....	19	8	7	".....	
Mildred II.....	31	8	8	Land fish.....	640
Mira.....	7	3	1	".....	1,100
Mobile.....	4	2	1	".....	20
Molde.....	7	3	1	".....	20
Morengen.....	17	5	1	".....	1,420
Myrtle.....	9	4	7	Bait.....	
National.....	20	5	6	" , land fish.....	900
Neptune.....	6	2	1	Land fish.....	360
Nielaros.....	13	5	1	".....	400
Nomad.....	15	5	8	" , bait.....	220
Norma.....	6	3	1	".....	680



## SESSIONAL PAPER No. 29

LIST of United States Fishing vessels which entered Canadian ports on the Pacific Coast during the year ended December 31, 1922—*Con.*

Name of Vessel	Tonnage	Number of men in crew	Number of times entered	Reasons for Entry	Quantity of fish landed
					cwt.
Nornen.....	6	3	1	".....	80
Norland.....	19	5	1	".....	1,540
North.....	9	4	11	" , bait, for orders.....	160
North Pole.....	5	2	1	".....	140
Nuzon.....	19	2	1	Shelter.....	
O.K.....	7	1	1	Bait.....	
Oak Leaf.....	5	2	1	Land fish.....	220
Ocean Queen.....	24	4	1	Bait.....	
Olympic.....	30	11	2	".....	
Omaney.....	34	13	1	Land, fish.....	3,080
Onah.....	18	5	8	" , bait.....	760
Orient.....	60	11	1	Shelter.....	
Orient.....	48	13	4	Land fish, bait.....	800
Panama.....	34	13	2	" ".....	4,240
Pauline J.....	16	4	1	Bait.....	
Peggy.....	5	3	1	Land fish.....	80
Pelican.....	17	5	1	".....	1,240
Pershing.....	18	5	11	" , bait.....	40
Petrel.....	67	7	1	Shelter.....	
Phoenix.....	15	2	1	Land fish.....	1,040
Pioneer.....	48	13	1	".....	4,460
Pioneer III.....	26	5	11	" , bait, unknown.....	480
Polaris.....	45	15	2	" ".....	2,660
President.....	24	6	2	" ".....	1,240
Presto.....	14	5	1	Bait.....	
Primrose.....	3	1	1	".....	
Rainier.....	4	3	1	Land fish.....	200
Rambler.....	10	3	1	Bait.....	
Raven.....	6	3	1	Land fish.....	100
Reform.....	4	3	1	".....	180
Regal.....	13	2	1	Bait.....	
Reliance.....	14	3	1	Land fish.....	980
Reliance.....	7	3	5	" , bait.....	660
Reliance L.....	19	5	1	".....	2,000
Republic.....	57	15	1	Shelter.....	
Republic.....	51	15	1	Land fish.....	6,460
Rescue.....	6	4	1	".....	40
Restitution.....	24	5	7	" , bait.....	480
Rival.....	4	3	1	".....	340
Roald.....	12	3	5	Bait.....	
Roald Amunsden.....	16	6	1	Land fish.....	1,400
Rolfe.....	10	5	1	".....	120
Rosario.....	16	6	6	Bait.....	
Royal.....	15	5	2	" , land fish.....	600
Roosevelt.....	13	5	7	".....	
Ruth.....	4	2	1	".....	
Sadie K.....	13	5	3	" , land fish.....	240
Sammy.....	8	3	7	".....	
Samson.....	7	3	1	Land fish.....	660
Scandia.....	79	13	1	".....	4,340
Scout.....	4	2	1	".....	220
Seattle.....	55	15	2	" , bait.....	2,740
Senator.....	11	6	1	".....	1,840
Sentinel.....	21	6	2	" , bait.....	920
Seymour.....	44	15	1	Shelter.....	
Sherman.....	18	5	1	Land fish.....	2,020
Sidney.....	6	3	1	Shelter.....	
Signal.....	13	4	1	Land fish.....	100
Siloam.....	16	8	14	Bait.....	
Sirius.....	21	5	1	Land fish.....	360
Sitka.....	50	15	1	".....	640
Snooks.....	5	1	1	Shelter.....	
Spencer.....	17	5	1	Land fish.....	340
S. & S.....	4	2	1	".....	100
Stanley.....	15	3	1	".....	420
Star.....	7	3	4	" , bait.....	1,380
Success.....	4	3	1	".....	300
Summer.....	34	15	1	".....	3,340
Sun Wing.....	15	4	1	".....	160
Superior.....	16	5	8	Bait.....	



14 GEORGE V, A. 1924

LIST of United States Fishing vessels which entered Canadian ports on the Pacific Coast during the year ended December 31, 1922—*Con.*

Name of Vessel	Tonnage	Number of men in crew	Number of times entered	Reasons for Entry	Quantity of fish landed cwt.
Superior.....	10	5	1	"	
Swift.....	7	2	2	"	
T. 469.....	5	3	1	Land fish.....	80
T. 603.....	4	3	1	"	100
T. 981.....	5	1	1	Shelter.....	
Tahoma.....	18	11	5	Land fish, bait.....	3,080
Tatoosh.....	24	6	2	"	2,480
Teddy J.....	13	4	1	"	1,500
Texas.....	16	5	10	" , bait.....	180
Thelma II.....	26	5	6	"	520
Thor.....	4	2	1	"	40
Tillicum.....	21	5	4	" , bait, for orders.....	2,400
Tom & Al.....	57	15	3	"	2,900
Topsy.....	3	1	1	Shelter.....	
Tordenskjold.....	39	13	5	Land fish, bait.....	2,880
Tot 363 L.....	2	1	2	Unknown.....	
Tyee.....	12	4	1	Land fish.....	440
W. 221.....	4	2	1	Shelter.....	
Unimak.....	10	3	1	Land fish.....	580
Uramus.....	15	5	5	" , bait.....	660
Valid.....	8	3	6	" "	320
Valid.....	4	3	1	Bait.....	
Valera.....	6	3	8	"	
Valorous.....	22	5	1	Land fish.....	220
Vamoose.....	16	1	1	Shelter.....	
Vansee.....	43	15	1	Land fish.....	3,840
Veba.....	6	2	1	Bait.....	
Venus.....	4	3	1	Land fish.....	1,240
Vesta.....	13	4	1	"	1,300
Victor.....	2	2	1	Unknown.....	
Viking.....	11	3	1	Land fish.....	920
Viking.....	6	3	1	"	240
Virginia.....	33	5	2	" , supplies.....	1,240
Vivian.....	9	3	1	"	660
Volunteer.....	21	5	3	" , bait.....	840
Volunteer.....	19	5	8	Bait.....	
Wabash.....	6	3	1	Land fish.....	680
Washington.....	24	8	1	"	600
Washington.....	15	5	4	" , bait.....	360
Wave.....	7	3	1	"	260
Westener.....	4	2	1	Shelter.....	
Westfjord.....	17	5	6	Land fish, bait.....	800
Westford.....	25	5	1	Bait.....	
White Star.....	17	5	2	" land fish.....	680
Wild Rose.....	4	2	1	Land fish.....	40
Wilhelmina.....	17	5	9	Bait.....	
Wilson.....	19	5	8	" land fish.....	140
William D. Muir.....	65	13	1	Shelter.....	
Wireless.....	19	5	9	Land fish, bait.....	40
Woodrow.....	23	5	4	" "	420
Yakutat.....	41	13	9	" " , for orders.....	1,600
Yaukee.....	10	3	1	"	140
Yellowstone.....	22	5	2	" , bait.....	800